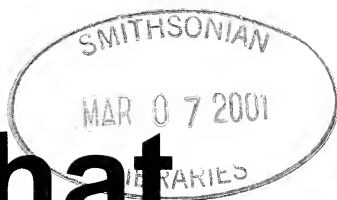


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The Chat

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WINTER 2001

No. 1



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The Ornithological Society of the Carolinas

THE CHAT

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Articles

Nocturnally Singing Northern Mockingbirds Orient Toward Lights. *Kate A. Miskell and Michael J. Justice* 1

1999 Fall North American Migration Count in South Carolina. *Donna S. Bailey*.. . . . 7

2000 Spring North American Migration Count in South Carolina. *Donna S. Bailey*.. . 21

General Field Notes

A South Carolina Specimen of the Spotted Towhee. *William Post and Jon S. Greenlaw* 34

Briefs for the Files, Summer 2000

37

Cover (Northern Cardinal) by Bill Duyck, Asheville, NC

Nocturnally Singing Northern Mockingbirds Orient Toward Lights

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I. Introduction

Male Northern Mockingbirds (*Mimus p. polyglottos*) often sing after dark during the breeding season. Casual observations suggest that mockingbirds tend to face their ventra toward lights while singing at night. However, this could be artifactual: human observers may simply notice them more often when they are facing lights because this orientation illuminates their white underparts. Whether mockingbirds truly show such a tendency needs to be assessed systematically. In addition to adding to our scant knowledge of mockingbird nocturnal behavior, confirming that mockingbirds face lights while singing at night may help explain their diurnal tendency to face the sun when the sun is low in the sky (Justice, 1996). In both situations, mockingbirds illuminate their lighter underparts and cast shadows on their darker upperparts.

Three theories may explain the tendency of mockingbirds to face the sun. First, orientation may play a role in communication. Facing the sun illuminates the white underparts and enhances the dorsoventral contrast, making the bird more conspicuous. Facing away from the sun shadows the white underparts and diminishes the dorsoventral contrast, making the bird less conspicuous (see Thayer [1909], Kiltie [1988], and Justice, Justice, & Joyner [2000] for detailed discussion of this theory). Thus, the function of orientation may be regulation of conspicuousness, which should influence communication with conspecifics (Justice, in prep).

Second, orientation behavior may be involved in thermoregulation. Precisely how sunlight on the feathers affects body temperature is complex. The reflection, absorption, and transmission spectra of the feathers, the positioning of the feathers in relation to the incoming light and to each other, and the effects of movement and wind on the boundary layer must all be considered. However, it is probably safe to say that, in general, sunlight hitting gray-black wings folded over brownish-gray upperparts is going to have a different effect on body temperature compared to sunlight hitting the white downy feathers on the ventrum.

Third, birds may orient themselves to the sun in an effort to regulate exposure to ultraviolet (UV) radiation (Burt, 1979). UV radiation may have both physiological benefits (being involved in vitamin synthesis in some animals) and costs (damage to DNA). Mockingbirds' dorsal feathers probably absorb more UV radiation than their ventral feathers, so their orientation with

respect to the sun may reflect efforts to balance the costs and benefits of exposure.

The brightest nocturnal light sources are typically streetlights, walkway lights, billboard signs, etc. These lights do not produce significant amounts of heat or UV radiation, especially compared to sunlight. Thus, a switch from facing the sun diurnally to nondirectional orientation at night would suggest that thermoregulation and/or UV exposure are significant factors in orientation toward the sun during the day. However, if mockingbirds face bright lights at night, this suggests that communication may be a significant factor in both nocturnal and diurnal orientation.

II. Methods

Study Sites, Times, and Conditions. During the 2000 breeding season, data were collected on 16 mockingbirds in Greenville, NC and two mockingbirds in Murfreesboro, NC. Data collection began as soon as nocturnal singing began (mid-April) and ended when nocturnal singing became rare (mid-June). All data were collected between 2030hr and 2345hr. Wind speed was measured by a Davis Instruments anemometer and was minimal during data collection (range 0.0 – 1.2 m/s). Temperature ranged from 15.6° - 25.4° C.

Sampling Method. Observers listened for singing mockingbirds while walking or driving. Only after hearing song did a search for the singing bird begin. This ensured that the sample was not accidentally biased toward mockingbirds in more visually conspicuous orientations (see Justice, Justice, & Joyner [2000] for a related technique). Only males were sampled, because females do not sing during the breeding season. Many birds were located almost immediately, without a flashlight; for others a diligent search was carried out with a flashlight. Although some birds required up to 30-40 minutes to find, only three singing birds were never found. Given that all sampled birds were singing on or near college campuses, it is unlikely that the presence of an observer was unduly bothersome to the bird; indeed, most birds sang throughout the search process. To avoid sampling the same bird more than once, observers did not return to an area where data had been collected. The size of the area avoided was at least three times the size of a typical mockingbird territory.

Measures. Once a bird was found, the observer recorded the date, time, temperature, location, wind speed from several directions, and the compass direction in which the bird was facing. The observer then mapped out the surrounding light sources using an Extech Instruments light meter set on the fast response for 0.0 – 199.9 Foot-candles (Fc). The light sensor was adhered to the sight guide of the compass, and the observer pointed the light sensor in 16 evenly spaced compass directions (0°, 22.5°, 45°, and so on). When possible, the observer mapped the light sources from the point on the ground directly underneath the song perch. Otherwise, for example, if the observer could only get to within 3m of this point, the observer walked a 3m-radius circle around the point. Because light intensity decreases exponentially with

distance and the radii of the traversed circles varied from bird to bird, the actual number of foot-candles recorded could not be compared between birds. Instead, all analyses used within-bird comparisons of illumination at various angles.

III. Results

Compass Direction. While not the focus of the present research, the data allowed for the opportunity to examine whether mockingbirds tend to orient in a particular compass direction. Certainly if such a tendency were present, it would affect the outcome of the present study. The compass orientations of the 18 mockingbirds sampled for this study are plotted in Figure 1. Using North as 0° , the mean direction $\bar{\phi} = 60.5^\circ$ and the angular deviation $s = 79.06^\circ$. There was no significant directional preference: mean vector length $r = 0.048$, Rayleigh test $p > 0.90$ (circular statistics were calculated using the techniques described in Batschelet [1981]).

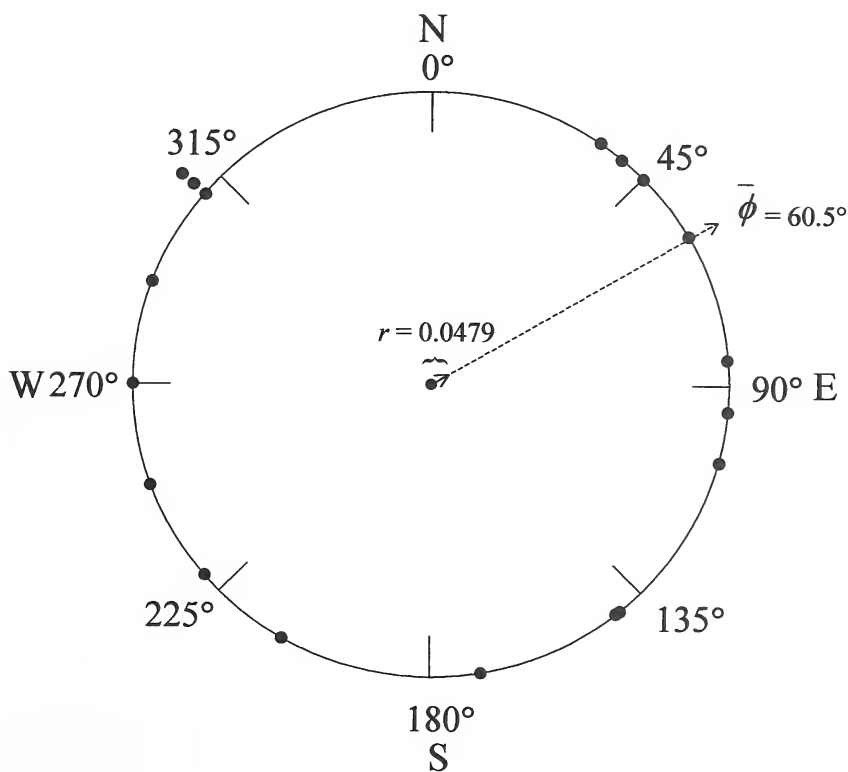


Figure 1. Compass orientations of the mockingbirds sampled for this study are represented by dots (•) on the circle. $\bar{\phi}$ = mean vector angle, r = mean vector length.

Intensity of Dorsal vs. Ventral Illumination. For 14 birds, the light they were facing was more intense than the light from which they were facing away. Three birds showed the opposite pattern, and one had equally intense lights from the directions of its dorsum and ventrum. Collapsing the latter two categories, the binomial $p < 0.02$ ($x = 14$, $n = 18$, null proportion = 0.50). Thus, there was a significant tendency to have the ventrum illuminated by more intense light than the dorsum. Even if the three birds that were never found were all counted as having more intense light on their dorsum (the more cryptic orientation), the binomial probability remains low ($p = 0.095$, $x = 14$, $n = 21$).

Orienting Toward the Most Intense Light Sources. As described above, light intensity was measured from 16 evenly spaced directions. For this analysis, the number of directions from the one in which the bird was facing to the one with the most intense light was counted. Thus, if the bird were facing in the direction from which the most intense light was coming, it scored zero. If the bird were facing one direction over from the most intense light, it scored one. If the bird were facing the opposite direction of the most intense light, it scored eight. The results are plotted in Figure 2. Of the 14 birds with more intense light on their ventra compared to their dorsa, 13 scored zero or one and 1 scored four. Scores of zero, one, or two may be considered to be facing the most intense light because these orientations will illuminate most of the ventral surface. Comparing $n = 13$ scores of zero or one with $n = 1$ score between three and eight, binomial $p < 0.001$ ($x = 13$, $n = 14$, null proportion = 0.33).

IV. Discussion

The data above suggest that mockingbirds singing at night during the breeding season 1) do not tend to face in any particular compass direction, 2) tend to maintain a higher light intensity on their ventra compared to their dorsa, and 3) do so by facing toward or near the direction from which the most intense light is coming.

It is unlikely that thermoregulation or regulation of exposure to UV is involved in this behavior because of the low amounts of heat and UV that could be acquired from an artificial light at even a short distance. Communication is a better explanation. At night, mockingbirds would be much more conspicuous when their ventra are intensely illuminated compared to their dorsa. This was readily apparent to human observers, and thus might also be true for other animals with similar or better visual systems.

The information being transmitted via a conspicuous orientation, the recipients of this information, and how they respond to it remains unknown. One thing that must be considered is that all mockingbirds in this study were singing when measured, and singing is a conspicuous behavior in the auditory channel. On the one hand, orientation may complement the auditory conspicuousness of the song by making the singer visually conspicuous as well. For example, if song is used for mate attraction, orientation may provide or

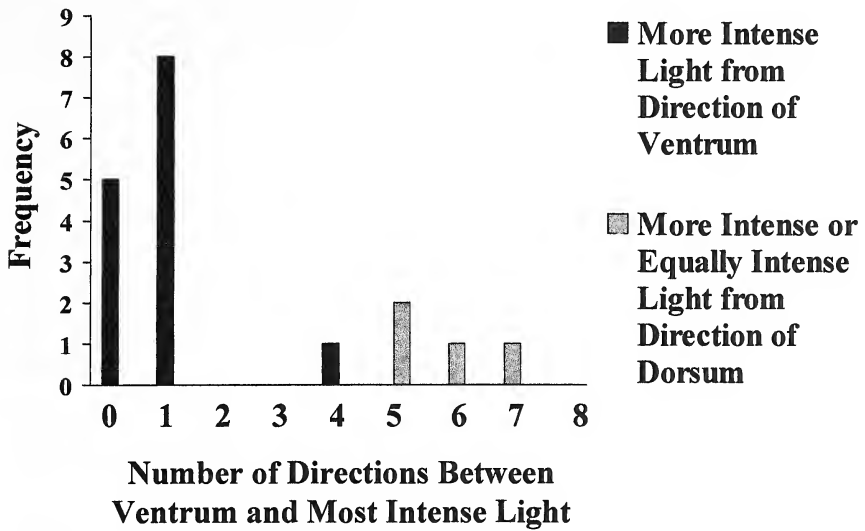


Figure 2. $N = 14$ mockingbirds were oriented so that the light on their ventra was more intense than the light on their dorsa (black bars). These also tended to be facing the most intense light source available (scores of 0 or 1). $N = 4$ mockingbirds were oriented so that the light on their dorsa was more intense than or equally intense as the light on their ventra (gray bars).

enhance important visual cues for the female. The same may be true of facing the sun during the day, although thermoregulation and UV exposure are likely to play a role in diurnal orientation. On the other hand, orientation may compensate for the auditory conspicuousness of song, which may alert both diurnal and nocturnal aerial predators to the presence of potential prey. If predators keep light sources at their backs to illuminate potential prey, then mockingbirds may face light sources to detect such predators. Even if such an orientation makes the bird conspicuous, the early detection of a predator may be so advantageous that the conspicuousness of the orientation becomes moot. However, this paper specifically examined orientation of the ventrum, not the beak or eyes. If illuminating the white ventrum increases conspicuousness, then

it seems a better antipredation strategy would be to direct the ventrum away from light sources and turn the head to search for predators; this allows for crypsis of the body while the eyes are searching. Future investigators could use experimental manipulations of light sources and/or the color of the ventrum to address some of these hypotheses.

Acknowledgments

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Birds of the Carolinas Student Research Grants Program

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1999 Fall North American Migration Count In South Carolina

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The Fall 1999 North American Migration Count was conducted on September 18, 1999. 27,676 individuals of 204 species were discovered by 82 observers in 52 parties covering 12 counties in South Carolina on this seasonable fall day. Numbers of observers and counties included on the count are somewhat low because the count was disrupted by the evacuation and subsequent return of coastal residents due to Hurricane Floyd. Of this total 38 species were "exclusives," found only in one county. The exclusives break down as follows:

Aiken: 2	Fairfield: 1	Richland: 2
Charleston: 7	Georgetown: 7	Spartanburg: 3
Cherokee: 2	Hampton: 1	
Chester: 6	Jasper: 7	

County Summaries

Aiken County (Aike): 107 species, 2752 individuals. 54° F - 80° F. 7:30 AM-7:30 PM.

Participants: Coordinator Anne Waters, 1621 Apple Valley Drive, Augusta, GA 30906. 706/793-2788. John Austin, Paula Austin, Steve Bingham, Kathi Borgman, John Demko, Nancy Demko, Christine Huzella, Sandra Johnson, Carol Jordan, Paul Koehler, Richard Lux, Marylyn McLeod, Daphne Parker, Damon Paradise, Vernon Waters, Alice Walker, Carolyn White, Calvin Zippler

Aiken County's exclusives were excellent finds - 2 lingering Mississippi Kites and a Gray Kingbird that might have arrived with Hurricane Floyd.

Barnwell County (Barn): 58 species, 411 individuals. 60° F - 80° F. 8:00 AM - 3:00 PM.

Participants: Coordinator Teddy Shuler, 433 Sheraton Drive, Beech Island, SC 29842. 803-302-6104. Ned Shuler.

Barnwell County reported two Black-throated Green Warblers, three Yellow Warblers, and six early Ruby-crowned Kinglets.

Charleston County (Char): 132 species, 8122 individuals. 60° F - 78° F. 5:45 AM - 7:45 PM.

Participants: Coordinator Perry Nugent, 2260 Dallerton Circle, Charleston, SC 29414. 843/556-3841. Gifford Beaton, Jim Brownlee, Sue Brownlee, John Brubaker, Edward Conradi, Sandra Conradi, John Cottingham, Ben Smith, Craig Watson.

One of Charleston County's exclusives was an Orange-crowned Warbler, perhaps a somewhat early date for this species. The other Charleston exclusives were Least Bittern, Black-crowned Night-Heron, Peregrine Falcon, Sora, Marbled Godwit, and Gull-billed Tern.

Cherokee County (Cher): 91 species, 1490 individuals. 57° F - 78° F. Times not recorded.

Participants: Coordinator Lyle Campbell, 126 Greengate Lane, Spartanburg, SC 29307. 864/585-1228. Laura Bannan, Russell Bannan, Tim Brown, Sarah Campbell, Marion Clark, Dan Codispoti, Frances Craig, Sammy Floyd, Robin Gilman, Teresa Glen, John Green, Alice Henderson, Don Henderson, Betty Howard, Joel Jones, Dennis Kimbrell, Micky Marotte, Bill Moody, Bill Myeres, Mary Ann Myeres, Lisa Pearson, Ken Pearson, Doug Raynor, Emma Raynor, Alan Rose, Jenny Scott, Walton Scott, Gerald Thurmond, Les Young.

Exclusive to Cherokee County were Blackburnian Warbler and a lingering Orchard Oriole.

Chester County (Ches): 81 species, 479 individuals. 48° F - 72° F. 6:45 AM - 4:15 PM.

Participants: Coordinator Albert E. Conway, 1672 Deer Run Road, Catawba, SC 29704. 803/329-3759. Gail B. Ice.

Chester had an six exclusives – early Ring-necked Duck and Bufflehead, Common Snipe, Horned Lark, Grasshopper Sparrow, and the always excellent Barn Owl.

Fairfield County (Fair): 85 species, 1585 individuals. 51° F - 76° F. 4:30 AM - 8:30 PM.

Participants: Coordinator Donna S. Bailey, 176 Raven's Place, Winnsboro, SC 29180. 803/635-7032. Buddy Bailey, Bob Ellis, Tim Kalbach, Gary Sowell, Nancy Lyman.

Fairfield County's exclusive was an early Common Loon, found on Lake Monticello.

Georgetown County (Geor): 84 species, 2436 individuals. 65° F - 82° F. 7:30 AM - 4:30 PM.

Participants: Coordinator Jack Peachey, 103 Walnut Circle, Conway, SC 29520. 843/347-5810. Wendy Allen, Bob Maxwell, Paul Rogers.

Among Georgetown's exclusives were Piping Plover, Whimbrel, Red Knot, Bonaparte's Gull, Common Tern, and Seaside Sparrow. The Seaside Sparrow is a nice bird to find in South Carolina.

Hampton County (Hamp): 57 species, 548 individuals. 62° F - 85° F. 6:45 AM- 5:45 PM.

Participants: Coordinator Carroll Richard, P.O. Box 893, Hampton, SC 29924. 803/943-4661. David Breland, Karen Breland.

Hampton County's exclusive was a Purple Gallinule. Hampton County also reported an early Palm Warbler, a nice find along the coast which does not usually have the warbler push that the interior of the state sees.

Jasper County (Jasp): 53 species, 2448 individuals. 76° F - 78° F. 12:00 PM - 4:15 PM.

Participants: Coordinator Patricia E. Metz, Parkway Business Center, Suite 1000, Business Center Drive, Savannah, GA 31405. 912/652-4415 ext. 103. John Metz.

A half-day effort in Jasper yielded numerous exclusives, including American White Pelican, early Green-winged Teal and Northern Shoveler, Ruddy Duck, American Avocet, Lesser Yellowlegs, and Black Tern.

Lexington County (Lexi): 60 species, 1104 individuals. Temperatures not reported. 8:00 AM - 5:00 PM.

Participants: Coordinator Molly Bonnell, 220 Cannon Trail Road, Lexington, SC 29072. 803/359-6280. Andrea Ceselski, Jerry Griggs.

Two Tennessee Warblers and two Magnolia Warblers were nice finds for Lexington County.

Richland County (Rich): 80 species, 1432 individuals. 54° F - 82° F. 6:15 AM - 6:45 PM.

Participants: Coordinator Robin Carter, 4165 E. Buchanan Drive, Columbia, SC 29206. 803/788-8820. Bobby Desportes, Caroline Eastman, Heidi Hoerman, Kathleen O'Grady .

The exclusives reported from Richland County were Bicknell's Thrush, an excellent find anywhere in the state, and Ovenbird.

Spartanburg County (Spar): 97 species, 5195 individuals. 57° F - 78° F. 6:30 - 10:30 PM.

Participants: Coordinator Lyle Campbell, 126 Greengate Lane, Spartanburg, SC 29307. 864/585-1228. Laura Bannan, Russell Bannan, Tim Brown, Sarah Campbell, Marion Clark, Dan Codispoti, Frances Craig, Sammy Floyd, Robin Gilman, Teresa Glen, John Green, Alice Henderson, Don Henderson, Betty Howard, Joel Jones, Dennis Kimbrell, Micky Marotte, Bill Moody, Bill Myers,

Mary Ann Myers, Lisa Pearson, Ken Pearson, Doug Raynor, Emma Raynor, Alan Rose, Jenny Scott, Walton Scott, Gerald Thurmond, Les Young

Spartanburg County had three exclusives – an early Yellow-bellied Sapsucker, an early Winter Wren, and a Song Sparrow.

CAROLINABIRDS

Carolinabirds is an Internet e-mail discussion group about birds and birding in the Carolinas. Subscribers frequently post sightings to it similar to those found in Briefs for the Files, but unusual behavior receives more attention. Subscriptions are free. To subscribe, address an e-mail message to <majordomo@duke.edu>. Don't fill in the subject line. As your message, simply put, "subscribe carolinabirds" (without the quotes). You will receive a confirmation and more information shortly. Submissions for Briefs for the Files should be sent directly to Ricky Davis.

18 September 1999	Aike	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
Northern Shoveler									52				52	1
Ring-necked Duck					3								3	1
scaup sp.									2				2	1
Bufflehead					2								2	1
Ruddy Duck									1				1	1
Black Vulture	55	3	26	6	2	40		36				1	79	4
Turkey Vulture	38	8	80	8	5	35	7	21	10	14	8	29	129	8
Osprey			12		2		11		2	1		1	17	5
Mississippi Kite	2												0	0
Bald Eagle	2		3		4	2		10					16	3
Northern Harrier	2						2		3				5	2
Sharp-shinned Hawk			1	1	1							2	3	2
Cooper's Hawk											1	2	3	2
accipiter sp.									1				1	1
Red-shouldered Hawk	8		13		1	4	4	1		3	4	4	21	7
Broad-winged Hawk				2					2			1	3	2
Red-tailed Hawk	3		5	3	2	3	1	3		2	1	10	22	7
buteo sp.				2									0	0
American Kestrel	7		3	2		2	2	2		5	1		12	5
Merlin			2				1						1	1
Peregrine Falcon			1										0	0
Wild Turkey	9	17		8	7	18					1	28	54	4
Northern Bobwhite											1	9	10	2
Clapper Rail			44				15		6				21	2
Sora			6										0	0
Purple Gallinule								5					5	1
Common Moorhen		2	123				6	8	12				26	3
American Coot		6	6		3				3		1		7	3

	Alke	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
18 September 1999														
Black-bellied Plover			82				54						54	1
Semipalmated Plover			9				51						51	1
Piping Plover							2						2	1
Killdeer	36	4	4	23	17		9	4	2		13	63	108	6
American Oystercatcher			6				33						33	1
Black-necked Stilt			1						29				29	1
American Avocet									358				358	1
Greater Yellowlegs			136				44		22	3			69	3
Lesser Yellowlegs									115				115	1
Solitary Sandpiper	1		5						1			2	3	2
Willet			24				27						27	1
Spotted Sandpiper	1		3		2	1	5		1			1	10	5
Whimbrel							1						1	1
Marbled Godwit			1										0	0
Ruddy Turnstone			8				25						25	1
Red Knot							3						3	1
Sanderling	1		123				21						21	1
Western Sandpiper	3						2						2	1
Least Sandpiper	36		8						0				0	0
peep sp.							26		108				134	2
Pectoral Sandpiper	5		1										0	0
Dunlin			3				34						34	1
Short-billed Dowitcher			800				669						669	1
dowitcher sp.									16				16	1
Common Snipe					1								1	1
Laughing Gull			91				78		12				90	2
Bonaparte's Gull							1						1	1
Ring-billed Gull			63		13		13						26	2

	Alke	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
18 September 1999														
Herring Gull			2				24						24	1
Gull-billed Tern			1										1	1
Caspian Tern			4				122		2				124	2
Royal Tern			34				37						37	1
Sandwich Tern							83						83	1
Common Tern							3						3	1
Forster's Tern			5					3					3	1
Least Tern			2				2						2	1
Black Tern									4				4	1
Black Skimmer			24				160		2				162	2
Rock Dove	49		26		11	14					43	187	255	4
Mourning Dove	166	11	111	92	11	46	28	39	22	543	123	140	952	8
Common Ground-Dove	2						2		7				9	2
Yellow-billed Cuckoo	2	1	7	3							1	1	2	2
Barn Owl					2								2	1
Eastern Screech-Owl	1		4			4					5	7	16	3
Great Horned Owl	1		3			1					1	1	3	3
Barred Owl	4				1	1					4	1	7	4
Common Nighthawk	2				6						10		16	2
Whip-poor-will						1					2	1	4	3
Chimney Swift	73		2004	65	45	39		9		36	44	47	220	6
Ruby-throated Hummingbird	6	2	2	9	2	15	1	1		7	1	34	61	7
Belted Kingfisher	7	3	43	2	1	5	8	3	5	1	6	17	46	8
Red-headed Woodpecker	14	4	12	1		4		6			10	1	21	4
Red-bellied Woodpecker	65	2	37	5	3	17	1	5	1	21	26	21	95	8
Yellow-bellied Sapsucker												3	3	1
Downy Woodpecker	28	1	20	5	4	16				7	6	16	49	5
Hairy Woodpecker	1		1		1					1	7	2	11	4

	Aike	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
18 September 1999														
Red-cockaded Woodpecker			11				1						1	1
Northern Flicker	6	3	7	6		6	1			4	2	6	19	5
Pileated Woodpecker	27	12	20	2	1	7	2			2	9	4	25	6
Eastern Wood-Pewee	18	3	26			9		3		8	2	3	25	5
Acadian Flycatcher	1		2	1		1					7		8	2
Eastern Phoebe	1	1		2	1					1		21	23	3
Great Crested Flycatcher	1		5		1	1						1	3	3
Eastern Kingbird		2	7							4		6	10	2
Gray Kingbird	1												0	0
Horned Lark					17								17	1
Purple Martin	1		4										0	0
Tree Swallow			25				50	12				2	64	3
Northern Rough-winged Swa	90		37										0	0
Barn Swallow	15												0	0
Blue Jay	127		5				4	54	3			3	64	4
American Crow	62	15	104	67	30	48	2	18		19	45	92	203	7
Fish Crow	12		85	2	2	5	13	33		2	5		359	7
crow sp.	12		50				3	46	1	5			60	6
Carolina Chickadee	88	22	54	37	5	35		4		34	29	90	197	4
Tufted Titmouse	112	30	44	27	2	25	6	5		16	37	58	149	6
Red-breasted Nuthatch	1			1		1						2	3	7
White-breasted Nuthatch	14	1	20	2	1						8	9	18	2
Brown-headed Nuthatch	56	12	50	6	4	23		3		5	11	13	59	3
Carolina Wren	78	8	64	28	1	45	8	1		28	71	51	205	6
House Wren	1					3					1	1	5	7
Winter Wren												1	1	3
Marsh Wren			4				2						2	1
Ruby-crowned Kinglet		6								1		9	10	1

18 September 1999	Alke	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
Blue-gray Gnatcatcher	7	2	10	2		6		4		3	4	8	25	5
Eastern Bluebird	20	7	15	31	5	11		14		8	5	94	137	6
Veery	2		1			26				2	12		40	3
Gray-cheeked Thrush						20				7	2		29	3
Bicknell's Thrush											1		1	1
Swainson's Thrush	1					31				8	30		69	3
Hermit Thrush	2					2						2	4	2
Wood Thrush						5		1			12	1	19	4
American Robin	10	6	18	43	11	1					3	71	86	4
Gray Catbird	9	5	6	9	2	17	4			5	7	8	43	6
Northern Mockingbird	36	15	43	37	9	26	16	17	2	26	17	39	152	8
Brown Thrasher	21	3	6	13	2	3	2	1		6	5	16	35	7
Loggerhead Shrike	4	1	1	1	2	1	2	4		1	6		16	6
European Starling	463	6	37	135	20	7	4	2		2	5	209	249	7
White-eyed Vireo	40	17	50		1	29	4	3		11	29	1	78	7
Blue-headed Vireo	1						1						1	1
Yellow-throated Vireo	4			1									0	0
Philadelphia Vireo						2						2	4	2
Red-eyed Vireo	9	2	53	2		29	10	1		5	8	3	56	6
Blue-winged Warbler	3		1								1		1	1
Golden-winged Warbler						2						1	3	2
Tennessee Warbler			2	2		1				2			3	2
Orange-crowned Warbler			1										0	0
Northern Parula	15		9		3	8		4		4	13		32	5
Yellow Warbler		3				2						4	6	2
Chestnut-sided Warbler	2			9		3					2		5	2
Magnolia Warbler				3		13				2	3	3	21	4
Black-throated Blue Warbler	1		1							1	3		4	2

	Alke	Barn	Char	Cher	Ches	Fair	Geor	Hamp	Jasp	Lexi	Rich	Spar	TOTAL Individuals	# Counties Reporting Species
18 September 1999														
Hours foot	17.75	2	30	11	7	10	7.25	6	3	9	11	33.5		86.75
Hours car	18.25	5	16	12.25	2.5	6	1.75	5	1	2	7	11.5		36.75
Hours boat	0			0	0	0	0	0	0	0	0	3		3
Hours canoe/kayak	0			0	0	0	0	0		0	0	0		0
Hours bike	0			0	0	0	2	0		0	0	0		2
Hours horseback	0			0	0	0		0		0	0	0		0
Hours other	0		2	0	0	0		0		0	0	0		0
Miles foot	29.5	2	18	12	12	5	9.25	4	5	5.5	8	25.5		74.25
Miles car	212.5	77	52	101.5	131	131	23.5	121	50	61	107	241.6		866.1
Miles boat	0			0	0	0	0	0	0	0	0	8		8
Miles canoe/kayak	0			0	0	0	0	0		0	0	0		0
Miles bike	0			0	0	0	6.5	0		0	0	0		6.5
Miles horseback	0			0	0	0		0		0	0	0		0
Miles other	0		7	0	0	0		0		0	0	0		0
Hours Feeder Watch	10.5		0	0	0	0		0		0	0	25		25
#Feeder Watchers	4		0	0	0	0		0		0	0	13		13
#Feeder Stations	9		0	0	0	0		0		0	0	10		10
Hours Stationary	0		0	0	0	0		0		0	0	0		0
#Parties Stationary	0		0	0	0	0		0		0	0	0		0
#Observers Stationary	0		0	0	0	0		0		0	0	0		0
Hours Owling	0		0	0	0	3		0		0	0.5	1.5		5
Miles Owling	0		0	0	0	0		0		0	0	5		5
#parties owling	0		0	0	0	1		0		0	1	3		5
#observers owling	0		0	0	0	1		0		0	2	4		7

2000 Spring North American Migration Count In South Carolina

Donna S. Bailey
176 Raven's Place
Winnsboro, SC 29180

The Spring 2000 North American Migration Count was conducted on May 13, 2000. 211 species comprised of 43,147 individuals were found for this North American Migration Count. 16 counties in the state were covered by 135 observers in 96 parties. Many reporters called the bird activity slow, possibly due to the early heat wave that punished the intrepid counters. Spartanburg was the cool spot, with an afternoon high of 89° F; Hampton was the hot spot, with an afternoon high of 98° F. 31 species were “exclusives,” found only in one county. The exclusives break down as follows:

Beaufort: 1	Colleton: 1	Oconee: 7
Calhoun: 1	Georgetown: 7	Spartanburg: 5
Charleston: 4	Hampton: 1	York: 1
Cherokee: 2	Jasper: 6	

County Summaries

Aiken County (Aike): 103 species, 2617 individuals. 71° F - 95° F. 6:30 AM - 9:40 PM.

Participants: Coordinator Anne Waters, 1621 Apple Valley Drive, Augusta, GA 30906. 706/793-2788. Jack Cooper, Carol Eldridge, Larry Eldridge, John Demko, Adrian DeBiase, Christine Huzella, Sandra Johnson, Paul Koehler, Richard Lux, Susan Turner, Alice Walker, Doug Walker, Calvin Zippler.

Counters in Aiken County found 2 Cape May Warblers and 19 Northern Bobwhite, a nice number, as Bobwhite are becoming increasingly hard to find.

Beaufort County (Beau): 62 species, 948 individuals. 67° F - 90° F. 6:20 AM - 7:30 PM.

Participants: Coordinator Patricia E. Metz, Parkway Business Center, Suite 1000, Business Center Drive, Savannah, GA 31405. 912/652-4415 ext. 103. Clem Dietze, Allan Flock, Paige Mulhollan.

Beaufort County's exclusive was a lingering Ruby-crowned Kinglet. Beaufort also reported 3 Baltimore Orioles, an excellent number for this migratory species.

Calhoun County (Calh): 71 species, 738 individuals. 70° F - 97° F. 7:00 AM - 3:00 PM.

Participants: Coordinator Robin Carter, 4165 E. Buchanan Drive, Columbia, SC 29206. 803/788-8820. Dennis Forsythe, Donna Forsythe, Jack Stewart, Lula Stewart.

The species found exclusively in Calhoun County was a Horned Lark, a nice find.

Charleston County (Char): 141 species, 8682 individuals. 66° F - 90° F. 4:30 AM - 7:30 PM.

Participants: Coordinator Perry Nugent, 2260 Dallerton Circle, Charleston, SC 29414. 843/556-3841. Gifford Beaton, Mike Bernard, Jim Brownlee, Danny Carlson, Peg Clarke, Edward Conradi, Joan Hylander, Ann Kent, Perry Nugent, Ernie Prupis, Allen Russell, Ben Smith, Joseph Stevenot, Martha Stevenot, Craig Watson, Betty Zimmerman.

All of Charleston's exclusives are, appropriately enough, marsh birds or shorebirds – Virginia Rail, American Oystercatcher, Pectoral Sandpiper, and Common Tern.

Cherokee County (Cher): 88 species, 1204 individuals. 70° F - 89° F. 6:00 AM - 11:00 PM.

Participants: Coordinator Lyle Campbell, 126 Greengate Lane, Spartanburg, SC 29307. 864/585-1228. Claude Cobb, Ken Garrett, J. B. Hines, Karla Lavender, Maxie Nix, Alan Rose, Ed Wilde, Les Young.

The two species exclusive to Cherokee County were a lingering Yellow-bellied Sapsucker and Least Flycatcher, a nice migrant to find in South Carolina.

Chesterfield County (Chef): 82 species, 1239 individuals. Temperatures not reported. 6:30 AM - 4:00 PM.

Participants: Coordinator Bob Wood, 2421 Owl Circle, West Columbia, SC 29169. 803/791-3833.

Among the not-so-easy to find birds on the Chesterfield count were Swainson's Warbler and a late Magnolia Warbler.

Colleton County (Coll): 117 species, 2584 individuals. 66° F - 90° F. 7:00 AM - 3:00 PM.

Participants: Coordinator Sharon Brown, P. O. Box 327, Adams Run, SC 29426. 843/889-8299. Mrs. M. A. Aldenderfer, Tim Kalbach, Nancy Lyman, Gary Sowell.

The species exclusive to Colleton County was the ever-elusive Black Rail, found at Bear Island WMA.

Fairfield County (Fair): 83 species, 674 individuals. 66° F - 90° F. 5:00 AM - 8:00 PM.

Participants: Donna S. Bailey, 176 Raven's Place, Winnsboro, SC 29180. 803/635-7032. Buddy Bailey, Bob Ellis.

Among the nice-to-find birds on Fairfield County's tally were Blue-headed Vireos, which breed in small numbers in Fairfield County, as well as migrant Blackpoll Warblers and Scarlet Tanager.

Georgetown County (Geor): 80 species, 892 individuals. 79° F - 96° F. 6:30 AM - 7:00 PM.

Participants: Coordinator Jack Peachey 103 Walnut Circle, Conway, SC 29520. 843/347-5810. Charlie Haycock

The list of exclusives in Georgetown County included Northern Gannet and American White Pelican.

Hampton County (Hamp): 65 species, 883 individuals. 66° F - 98° F. 6:15 AM - 6:30 PM.

Participants: Coordinator Carroll Richard, P.O. Box 893, Hampton, SC 29924. 803/943-4661. David Breland, Karen Breland

Hampton County reported 3 Black-bellied Whistling Ducks.

Jasper County (Jasp): 128 species, 14266 individuals. 60° F - 90° F. 5:30 AM - 8:30 PM.

Participants: Coordinator Patricia E. Metz, Parkway Business Center, Suite 1000, Business Center Drive, Savannah, GA 31405. 912/652-4415 ext. 103. Amy Bess, Chris Graves, Valda Kelly, Mary Ellen Kirkland, Talley Kirkland, Barry Lowes, Philomena Lowes, John Metz, Keith Penrose, Ray Porter, Lauree San Juan, Leanna San Juan, Paul San Juan.

Jasper had 6 exclusives: Green-winged Teal, Northern Shoveler, Ruddy Duck, American Avocet, Stilt Sandpiper, and Swamp Sparrow.

Lexington County (Lexi): 79 species, 733 individuals. 72° F - 88° F. Times not reported.

Participants: Coordinator Molly Bonnell, 220 Cannon Trail Road, Lexington, SC 29072. 803/359-6280. Donna Bailey, Barbara Darden.

Painted Bunting was a nice inland find in Lexington County, as well as a Swainson's Warbler.

Oconee County (Ocon): 107 species, 1693 individuals. 70° F - 90° F. 6:45 AM - 6:35 PM.

Participants: Coordinator Steve Wagner, 316 E. Creswell, Greenwood, SC 29646. 864/223-0416.: Don Cox, Steve Cox, Vicki Cox, Ned Shuler, Teddy Shuler

Oconee County just edged out Jasper for the highest number of exclusives. Exclusives were Common Loon, Cooper's Hawk, Ruffed Grouse, American Pipit, Black-throated Green Warbler, Worm-eating Warbler, and Dark-eyed Junco.

Richland County (Rich): 86 species, 1030 individuals. 65° F - 97° F. 5:00 AM - 5:30 PM.

Participants: Coordinator Robin Carter, 4165 E. Buchanan Drive, Columbia, SC 29206. 803/788-8820. Caroline Eastman, Jerry Griggs.

Nice finds in Richland County were migratory Northern Waterthrush and Black-throated Blue Warbler.

Spartanburg County (Spar): 106 species, 4628 individuals. 71° F - 89° F. 5:00 AM - 11:00 PM.

Participants: Coordinator: Lyle Campbell, 126 Greengate Lane, Spartanburg, SC 29307. 864/585-1228. Frankie Altman, Beth Bartel, Anna Bennett, Daniel Bennett, Susan Bennett, Tim Brown, Andrew Campbell, David Campbell, Sarah Campbell, Dan Codispoti, Tom Moore Craig, Linda Deahl, Richard Deahl, Pat Fowler, Roy Fowler, Denis Funk, Robin Gilman, Michele Gilman, Tearesa Glen, John Green, Emma Harrington, Conway Henderson, Marilyn Hubbell, Glenn Englehardt, Jessie Ivy, Jack Jennings, Joel Jones, Herb Kay, Tammy King, Mary Ann Meyers, Angela Miller, Jim Miller, Margaret Miller, Michael Miller, Susan Monk, Bill Moody, Nora Moore, Ken Pearson, Lisa Pearson, Mary Potter, Hugh Pry, Janet Pry, Joanna Rieder, Gretchen Reidsema, Bob Scott, Ginny Scott, Walton Scott, Mac Shealy, Tina Taylor, Dick Thorpe, Lois Thorpe, Gerald Thurmond, Thomas Webster, Chris Welch.

Spartanburg County had five exclusives – Willow Flycatcher, lingering Yellow-rumped and Palm Warblers, Rose-breasted Grosbeak and a lingering White-throated Sparrow.

York County (York): 62 species, 331 individuals. 65° F - 85° F. 5:00 AM - 9:00 AM.

Participants: Coordinator David Collopy, 505 N. Confederate Avenue, York, SC 29730. 803/327-8342.

For a one man, half-day count, York County reported some fine numbers, including an amazing seven Grasshopper Sparrows.

North American Migration Count																		
South Carolina																		
13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Common Loon					1												1	1
Pied-billed Grebe		2							1		2		1		1		7	3
Northern Gannet															2		2	0
American White Pelican															18		18	0
Brown Pelican									170				2				172	2
Double-crested Cormorant	15	23					25	1	39		11	2	58	2	3		179	6
Anhinga	18	17				4		1	54				23	7			124	4
Least Bittern	2	6				1			8				5				22	3
Great Blue Heron	5	14	3	1	6	15	2	6	44	3	22	4	11	6	3	2	147	11
Great Egret	145	51	1		2	24			427		1		105	6	6	4	772	6
Snowy Egret	61	168							93				175		3		500	2
Little Blue Heron	10	13			34				113				37	1			208	3
Tricolored Heron	14	12							45				30				101	2
Cattle Egret	2	24				92			17				23	49		20	227	3
Green Heron	14	15	2	1	2	2	4	1	36	2	10	1	11	17	1	2	121	11
Black-crowned Night-Heron	44								14				11				69	2
Yellow-crowned Night-Heron	6					2		5	24				8				45	4
night-heron sp.															1		1	0
White Ibis	34	14	2			124			9				28		4		215	4
Glossy Ibis		12							1				28				41	2
Wood Stork		59				11			33								103	2
Black-bellied Whistling Duck						3											3	1
Canada Goose			8	4	74		3			4	198	37		75		47	450	7
Wood Duck	4	5				8			17	11	2	7	2	14		2	72	6
Green-winged Teal													1				1	1
Mottled Duck		26							18				6				50	2
Mallard		3			4	3			1	4	122	3	4	12	2		158	7
Blue-winged Teal									5				7				12	2
Northern Shoveler													2				2	1
scaup sp.													2				2	1

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Red-breasted Merganser					7								7		5		19	2
Ruddy Duck													14				14	1
Black Vulture	2	25	3		6	55	15	1	12			10	6	12	1	1	185	9
Turkey Vulture	4	41	16		26	36	35	10	55	17	46	3	27	19	3	4	342	10
Osprey	5	3							20	1		1	6		6		42	4
Swallow-tailed Kite									3				2				5	2
Mississippi Kite	3	8				2		6	13	7			5	6		3	53	6
Bald Eagle	3				1	17			2				1	4			28	4
Sharp-shinned Hawk					1				1		1						3	3
Cooper's Hawk					2													1
Red-shouldered Hawk		3			3				6		13	1	1	7		1	35	5
Broad-winged Hawk					4			1			1	1					7	4
Red-tailed Hawk	1	4	2	1	7	3	3	5	2	3	26	3	2	6	1	1	70	11
American Kestrel											2					1	3	1
Ruffed Grouse					1												1	1
Wild Turkey	1				2		3	1	1		15	1		7		1	32	6
Northern Bobwhite	2	1	1	1	8	2			4	3	25	13	12	19		4	94	9
Black Rail	1																1	0
Clapper Rail	4								14				14		7		39	2
King Rail									4				2				6	2
large rail sp.															1		1	0
Virginia Rail									1								1	1
Purple Gallinule	2					5							1				8	2
Common Moorhen	18	16				10			99				44	1	7		195	3
American Coot	1	13			1			32	1				187				235	4
Black-bellied Plover	1	6						188					17		47		259	2
Wilson's Plover									7						7		14	1
Semipalmated Plover	62				9			428					128	4	229		860	3
Killdeer	2				3			8	37	3	22	12	12	9	1	6	115	7
American Oystercatcher									4								4	1
Black-necked Stilt	9								67				317		5		398	2
American Avocet													122				122	1

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Greater Yellowlegs		22			3				15				46				86	3
Lesser Yellowlegs		6			1			2	16		4		42		1		72	5
Solitary Sandpiper		1			1			1	43		9			1			56	4
Willet	12	4							32				42		7		97	2
Spotted Sandpiper		5	1		12				27	5	13	2	13	5	12	1	96	7
Whimbrel	18								73						3		94	1
Ruddy Turnstone									24						11		35	1
Red Knot									12						25		37	1
Sanderling		2							9				3		17		31	2
Semipalmated Sandpiper		11							71				425	2	1		510	2
Western Sandpiper								226					7		3		236	2
Least Sandpiper		181						26					26	20	1		254	2
White-rumped Sandpiper		10						1									11	1
peep sp.		158											8632		15		8805	1
Pectoral Sandpiper								3									3	1
Dunlin		58						800					35		79		972	2
Stilt Sandpiper													50				50	1
Short-billed Dowitcher		26						49					3		18		96	2
dowitcher sp.													295				295	1
Common Shrike								4					1				5	2
American Woodcock				1													1	1
Laughing Gull		17						873					18		42		950	2
Bonaparte's Gull		1						1									2	1
Ring-billed Gull		8		4				110	8				17				147	4
Herring Gull						1									3		4	1
Gull-billed Tern								7					170				177	2
Caspian Tern		2											14				16	1
Royal Tern								2					18		20		40	2
Common Tern								8									8	1
Forster's Tern		20						14			14		3		14		65	3
Least Tern								95					852		36		983	2
Black Skimmer		1						5					97				103	2

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Aike	Geor	Chef	TOTAL Individuals	# Counties Report
Rock Dove		1	7	1	9	4	2	30	66	7	51	3	16	28	1		226	11
Eurasian Collared Dove		4	2					7						2	4		19	2
Mourning Dove	20	21	38	4	67	27	26	29	77	25	197	67	50	183	19	36	886	11
Common Ground-Dove									2				16				18	2
Yellow-billed Cuckoo	1	10			4	2	10	7	30	4	8	1		14	3	5	99	9
Eastern Screech-Owl								1	1	3	2			5			12	4
Great Horned Owl								1	2		4		3				10	4
Barred Owl							2	2	4	2	2		2	3		2	19	6
Common Nighthawk				2				1			1		6	6		1	17	4
Chuck-will's-widow							3	4	6	6	21	2	1	7			50	7
Whip-poor-will				2			3			3	14	7		4			33	5
Chimney Swift	2	9	29	5	74	24	11	49	32	30	184	33	3	42	3	18	548	11
Ruby-throated Hummingbird	1	4	1		4	2	5	1	16	7	21	6		2		3	73	9
Belted Kingfisher	1				3			1	2	1	9	2		6		1	26	6
Red-headed Woodpecker	1	3	1		1	11	1	1	7	1	2		1	11	1	1	43	9
Red-bellied Woodpecker	15	18	13	1	9	8	7	26	55	18	29	8	8	47	2	10	274	11
Yellow-bellied Sapsucker												1					1	1
Downy Woodpecker	7	1			8	1	3	2	8	3	7	4		13		3	60	9
Hairy Woodpecker							4			1		1					6	3
Red-cockaded Woodpecker						3			5						2		10	2
Northern Flicker	1	1	1	3	1		1	1	5	2	18	13	3	2			52	10
Pileated Woodpecker	2	5	4	2	9		2	4	13	2	5	2	5	23	1	3	82	10
Eastern Wood-Pewee	2	29	7	2	5	5	3	6	70	3	6	8		37	2	4	189	10
Acadian Flycatcher		18	4	3	10		10	28	8	8	10		1	19		13	132	9
Willow Flycatcher											2						2	1
Least Flycatcher												1					1	1
Eastern Phoebe				6	23		2			2	48	9				5	95	6
Great Crested Flycatcher	12	79	42	4	15	6	11	21	72	14	15		10	69	9	32	411	10
Eastern Kingbird	4	25	20	4	21	6	7	4	14	12	40	17	8	20	4	26	232	11
Horned Lark			1														1	1
Purple Martin		40	35	105	35	49	4	8	27	8	32	30		8	4	49	434	10
Tree Swallow		104			5			20			1	1	14				145	5

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Northern Rough-winged Swallow				1	28	1	9	16	2	13	5	23	1	5		4	108	10
Bank Swallow		1						2			1	2					6	3
Cliff Swallow				12	16		7				234						269	4
Barn Swallow		7	30	4	70	11	5	18	99	5	345	46	20	14	4	120	798	11
Blue Jay	15	12	14	3	18	5	14	26	54	24	127	40	19	98	10	63	542	11
American Crow	12	14	26	14	55	13	21	20	50	37	194	47	22	73	2	66	666	11
Fish Crow	3	27	4		6	6	1	12	38	1	5	2	6	30	6	14	161	10
crow sp.		27				30	14		7				1	14	2		95	4
Carolina Chickadee	34	26	6	5	33	7		6	83	33	81	13	14	79	2	18	440	10
Tufted Titmouse	19	35	25	5	35	7		41	54	33	98	31	9	86	4	30	512	10
White-breasted Nuthatch	5	2			5	7		5	4		5	2		6	4		45	6
Brown-headed Nuthatch		4		1	16	6	3	8	24	6	4	4	2	34		6	118	10
Carolina Wren	19	21	27	2	16	2	1	67	60	28	127	12	12	48	2	20	464	11
House Wren				2							16						18	2
Marsh Wren		8							10				9				27	2
Ruby-crowned Kinglet	1																1	1
Blue-gray Gnatcatcher	6	78	10	5	30	3	22	45	92	26	24	16	5	33	1	62	458	11
Eastern Bluebird	10	13	9	3	38	15	11	1	22	5	125	43	7	18		20	340	11
Veery		2					2	2									6	2
Swainson's Thrush							1	1									2	2
Wood Thrush	2	3	6	5			2	6	3	5	15	1		12		8	68	9
American Robin		5	8	19			3	12	1	15	207	43	2	18		2	335	10
Gray Catbird			1		5	3	2		4	4	26	4	1	7		5	62	9
Northern Mockingbird	4	19	40	6	33	44	17	43	29	17	121	52	19	58	5	22	529	11
Brown Thrasher	2	3	11	2	9	12	7	5	28	10	100	40	10	21	2	10	272	11
American Pipit					8												8	1
Cedar Waxwing					24		5				36	36	5	24			130	5
Loggerhead Shrike		1	4			2		2	4			1		6			20	5
European Starling		1	18	5	45	6	6	44	16	4	205	44	1	93	5	44	537	11
White-eyed Vireo	22	31	14	2	4		9	18	33	2	11	5	4	46	5	38	244	10
Blue-headed Vireo					5		2										7	2
Yellow-throated Vireo	1	10	1	1	6		9	1	1	1	7	1		1			39	8

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Red-eyed Vireo		22	8	8	38		26	24	40	9	26	12	2	19	2	34	270	10
Northern Parula	4	52	8		24		17	42	52	7	5	3	9	49	4	3	279	9
Yellow Warbler					5				2		2						9	3
Chestnut-sided Warbler					1								1				2	2
Magnolia Warbler												1				1	2	1
Cape May Warbler			1											2			3	1
Black-throated Blue Warbler			1		2			1		1			2				7	5
Yellow-rumped Warbler											17						17	1
Black-throated Green Warbler					26												26	1
Yellow-throated Warbler	8	11			9	5	6	14	48	1	11		6	5	2	8	134	8
Pine Warbler	10	72	7	4	24	2	22	23	36	22	24	8	8	52		34	348	11
Prairie Warbler				7	11		14				18	1		16		5	72	5
Palm Warbler											1						1	1
Blackpoll Warbler					2		2				5						9	3
Black-and-white Warbler	4				3		6							4		5	22	2
American Redstart			8	1	8	2	5	2		1	3	1	1	1		5	38	10
Prothonotary Warbler		7	5	2	2	5	3	17	12	6		1	4	26		13	101	9
Worm-eating Warbler					5												5	1
Swainson's Warbler			1		3			3		1						1	9	4
Ovenbird	1			1	12		1			2		1	1				19	6
Northern Waterthrush								2						2			4	1
Louisiana Waterthrush			5		1		2	1		1	4			1		1	16	6
Kentucky Warbler		2	2	2	2		3	2	5	3	2			6		2	29	7
Common Yellowthroat	2	41	3	2	16		4	4	81	3	13	9	13	9	1	29	230	10
Hooded Warbler		11	3		14		6	6	3		2	1		3		8	57	7
Yellow-breasted Chat		6	5	2	18		12	3	2	9	20	7	7	13	1	7	112	10
Summer Tanager		25	6	2	7	3	5	8	23	4	10	5	1	47	3	12	161	11
Scarlet Tanager					2		1		1		1			1			6	4
Northern Cardinal	68	50	39	7	30	18	34	67	183	47	220	38	22	198	14	42	1077	11
Rose-breasted Grosbeak											1						1	1
Blue Grosbeak	5	13	3	1	11	6	3	5	10		7	4	2	13	1	6	90	10
Indigo Bunting		51	23	5	92	1	26	31	38	29	105	19	2	85		36	543	11

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Painted Bunting	14	23	6					5		1			26	1	1		77	4
Eastern Towhee	6	32	17	11	17	6	4	10	48	17	45	16	8	90		12	339	11
Bachman's Sparrow									5						3		8	1
Chipping Sparrow	1			2	18				2	1	44	16	2	3		4	93	7
Field Sparrow		1		2	5		7				43	10		4		2	74	6
Savannah Sparrow				2	2			2					9				15	4
Grasshopper Sparrow				7	8						18	2					35	4
Seaside Sparrow	8								1								9	1
Song Sparrow					2						12	4					18	3
Swamp Sparrow													3				3	1
White-throated Sparrow											6						6	1
Dark-eyed Junco					7												7	1
Bobolink	8								4		1	22	138				173	4
Red-winged Blackbird	68	132	12	2	63	24	9	5	1514		66	18	202	60	19	18	2212	10
Eastern Meadowlark			5	10	42		5				67	55	1	7		4	196	7
Lilian's Meadowlark																	0	0
Boat-tailed Grackle	80	35							189				147		33		484	2
Common Grackle	20	37	18	6	70	35	16	31	324	25	196	58	9	109	24	59	1037	11
Brown-headed Cowbird	6	17			8	1	8	7	37	11	40	13	14	19	1	2	184	9
blackbird sp.													3				3	1
Orchard Oriole	16	15			6	9	3	4	23		6	1		18	3	4	108	8
Baltimore Oriole	3						1										4	1
House Finch				3	11	7	9	17	17	17	94	12		36	2	6	231	9
American Goldfinch				1	37		9	4		5	42	8	1	1		9	117	8
House Sparrow		25		1	11		3	10		7	35	12	2	28	2	1	137	9
sandpiper sp?					1								833				834	2
empid sp?	1																1	
yellowlegs sp?													154				154	
duck sp?													1				1	
TOTALS																		
Species	62	117	71	62	107	65	83	86	141	79	106	88	128	103	80	82	Species	211
Individuals	948	2584	738	331	1693	883	674	1030	8682	733	4628	1209	14266	2617	892	1239	Individuals	43,147

13 May 2000	Beau	Coll	Calh	York	Ocon	Hamp	Fair	Rich	Char	Lexi	Spar	Cher	Jasp	Alke	Geor	Chef	TOTAL Individuals	# Counties Report
Observers	3	5	4	1	6	3	3	3	16	3	55	8	14	8	2	1		135
Parties	2	2	2	1	3	1	1	2	8	2	38	9	5	17	2	1		96
#Counties	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		16
Hours foot	2	6	4	1	11.8	7	8	6	27.5	5	32.5	13.5	7	39	10.5	6		186.75
Hours car	3.5	7.5	8	3	15.3	5.25	7	3	10.5	8	29.5	18	12	18.3	1.75	4.5		155
Hours boat	0	0	0	0	0	0	0	0	0.5	0	3	0	4	0	0	0		7.5
Hours canoe/kayak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Hours bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Hours horseback	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Hours other	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0		17
Miles foot	1	3.5	2.5	2	6	3.5	4	4	24		32.5	12.5	6	27.5	6	NR		135
Miles car	8	96	111	20	280	128	119	71	97	94	363	151	63	281	21	NR		1902.5
Miles boat	0	0	0	0	0	0	0	0	20	0	8	0	15	0	0	0		43
Miles canoe/kayak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Miles bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Miles horseback	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Miles other	0	0	0	0	0	0	0	0	34.5	0	0	0	0	0	0	0		34.5
Hours Feeder Watch	2	0	0	0	0	0	0	0	5.5	2	45.5	4	0	5.5	0	0		64.5
#Feeder Watchers	1	0	0	0	0	0	0	0	3	2	26	2	0	4	0	0		38
#Feeder Stations	3	0	0	0	0	0	0	0	5	0	16	2	0	7	0	0		33
Hours Stationary	6	0	0	0	0	0	0	0	2.5	4	0	0	0	0	0	0		12.5
#Parties Stationary	1	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0		6
#Observers Stationary	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0		6
Hours Owling	0	0	0	1	0	0	1.5	1	1	0.5	10.5	3.5	1	1.25	0	0		21.25
Miles Owling	0	0	0	10	0	0	0	32	1	0	60	12	1	2	0	0		118
#parties owling	0	0	0	1	0	0	1	1	2	2	6	1	1	2	0	0		17
#observers owling	0	0	0	1	0	0	1	1	2	2	10	1	1	3	0	0		22

[illegible]

General Field Notes

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A South Carolina Specimen of the Spotted Towhee

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On 19 February 1967, J. O. Watkins collected a Spotted Towhee (*Pipilo maculatus*) at his banding station in Spartanburg, Spartanburg County, South Carolina. The specimen (ChM 67.53; fig. 1) was prepared as a study skin by E. B. Chamberlain. The bird was a female, as determined by plumage. Its age was not determined. The preparator noted that the bird was "quite fat." Its mass was 45.1 g. Although the plumage was frayed, no molt was evident. Linear measurements, as recorded on the specimen label, were as follows: wing, 80 mm; tail, 87.5 mm; tarsus, 24 mm; bill [exposed culmen], 11.6 mm. R. C. Laybourne of the US National Museum determined that the bird belonged to the subspecies *arcticus*, which breeds in the northern Great Plains.

This record was mentioned by Burton (1970), but at that time *maculatus* was considered by the American Ornithologists' Union (1957) to be a subspecies of the "Rufous-sided Towhee" (*P. erythrophthalmus*). Originally, the Spotted Towhee was described as a distinct species (Swainson 1827, Sibley 1950), but later, based on information that it hybridizes with the Eastern Towhee, it was regarded as conspecific with that species (Sibley and West 1959). More recently, however, the hybridization evidence was reevaluated, and information on vocalizations, sexual dichromatism, and mitochondrial genetics were weighed, which resulted in resurrecting *P. maculatus* as a separate species (American Ornithologists' Union 1995, 1998).

Specimen or photographic records now also exist for North Carolina, Georgia and Florida. The North Carolina record is based on a specimen of *P. m. arcticus* collected 14 February 1957 at Fayetteville (Hauser 1960, J.A. Gerwin, pers. comm.). The Georgia record is of a male that was photographed



Figure 1. South Carolina specimen of the Spotted Towhee (ChM 67.53), collected 19 February 1967, Spartanburg, South Carolina, by J.O. Watkins. Digital photograph by P.S. Coleman, archived at Charleston Museum.

at Atlanta, spring 2000 (P. W. Sykes, Jr., pers. comm.). Interestingly, the single Florida specimen was collected in the same year as the South Carolina bird: a female arcticus (misidentified as a male) from Franklin Co., Florida, 14 December 1967 (Stevenson and Anderson 1994, Bowman 2000, Greenlaw and Engstrom forthcoming).

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INSTRUCTIONS FOR AUTHORS

www.carolinabirdclub.org/thechat.html

BRIEFS FOR THE FILES

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All Dates Summer 2000

Briefs for the Files is a seasonal collection of uncommon-to-rare or unusual North and South Carolina bird sightings and events which do not necessarily require a more detailed Field Note or article. Reports of your sightings are due the 20th of the month after the end of the previous season.

Winter = December 1 - February 28, due March 20
Spring = March 1 - May 31, due June 20
Summer = June 1 - July 31, due August 20
Fall = August 1 - November 30, due December 20

Reports can be submitted in any format, but I prefer that you type them and list the sightings according to the birds in checklist order (not according to dates or locations). If you submit your report to me through e-mail, please type your report directly into the message or copy it from a word processing program directly into the message. You may also attach your file to the e-mail, but if you do, please let me know the program used and also send a second version saved as a text (.txt) file.

Suitable reports for the Briefs include any sightings you feel are unusual, rare, noteworthy, or just plain interesting to you in any way! It is my responsibility to decide which reports merit inclusion in the Briefs.

Please be sure to include details of any rare or hard-to-identify birds.

I rely in part on sightings reported in Carolinabirds. Please don't, however, rely on me to pick up your sightings from Carolinabirds. Instead, please also send your sightings directly to me as described above.

If I feel that your sighting warrants a Field Note, I will contact either you or the appropriate state Field Notes editor. You may, of course, submit your Field Note directly to the editor without going through me.

COMMON LOON: An unusual summer sighting was of one on L. Hickory, NC, June 7 (Dwayne & Lori Martin). Most summer Commons are found at coastal sites.

HERALD PETREL: The only summer Heralds included one intermediate morph off Hatteras, NC, June 4 (Patteson *et al.*) and two (one dark, one light) off Manteo, NC, June 4 (Focus on Nature Tours).

FEA'S PETREL: Two were found this summer, off Hatteras July 15 (Patteson *et al.*) and off Oregon Inlet July 31 (Focus on Nature Tours).

BERMUDA PETREL: The ninth and tenth reports of this species for North Carolina included singles off Oregon Inlet June 2 (Patteson *et al.*) and June 3 (Focus on Nature Tours). Along with three sightings the week before, during the spring reporting season, a total of 5 this year is truly amazing.

CORY'S SHEARWATER: The peak count this summer was of 1,156 off Hatteras July 29 (Patteson *et al.*). The best total from shore was the 50 seen moving just off the beach at Long Beach, NC, June 16 (Ricky Davis).

GREATER SHEARWATER: The peak offshore count was 293 out of Hatteras July 29 (Patteson *et al.*). Noteworthy sightings near land included three at C. Lookout, NC, June 2 (Clyde Sorenson), one at Long Beach, NC, June 16 (Ricky Davis), and two off Winyah Bay, SC, July 4 (Clay & Pat Sutton, *fide* Harry LeGrand).

MANX SHEARWATER: This species is normally very rare and unexpected off the Carolinas in summer. This year though, they were found multiple times off Hatteras, with singles June 4, July 16, and July 29 (Patteson *et al.*).

AUDUBON'S SHEARWATER: Always of interest from shore, three flew past Long Beach, NC, June 16 (Ricky Davis).

WHITE-FACED STORM-PETREL: One individual of this exciting, much-sought-after species was found out of Oregon Inlet, NC, in mid-July (Allan Foreman, *fide* Brian Patteson).

LEACH'S STORM-PETREL: The best one-day count this summer was the 21 off Manteo, NC, June 4 (Focus on Nature Tours).

BAND-RUMPED STORM-PETREL: The peak total reported for this species during the summer was 143 off of Oregon Inlet July 29 (Focus on Nature Tours).

WHITE-TAILED TROPICBIRD: The only tropicbirds reported were off Hatteras, with two July 15 and one July 29 (Patteson *et al.*).

AMERICAN WHITE PELICAN: Unusual for summer, 12 spent the period of June 26 to the end of July at the Savannah Spoil Site, Jasper County, SC, as noted by Steve Calver.

BROWN PELICAN: Very rare and unusual inland sightings of Brown Pelican included one at Falls Lake, NC, July 26 (*fide* Brian Bockhahn) and one near the dam of L. Jocassee, SC, June 8 (*fide* Irvin Pitts).

ANHINGA: This species is being found inland with more regularity the last several years. One was a good find at a beaver pond complex in northern Johnston County, NC, June 20 (Harry LeGrand).

MAGNIFICENT FRIGATEBIRD: This summer's frigatebirds involved a female flying north at Hilton Head Island, SC, June 3 (Steve Compton and Margo Digan) and an immature at C. Hatteras, NC, June 6 (Wayne Irvin).

GREAT "WHITE" HERON: Extremely rare and totally unexpected was the presence of one at a golf course pond in Brevard, NC (Simon Thompson, sev. obs.). The bird was first located in mid-July and remained through the period. There are no previous mountain area records, and this form had not been seen in the Carolinas since the Pea Island, NC, bird that was present from July 1994 through the following year!

GREAT EGRET: Noteworthy mountain reports included nine along the New River, Alleghany County, NC, July 7 (Harrol Blevins) and one near Long Branch Creek, Ashe County, NC, July 8-9 (Tom Howard, Harry LeGrand).

REDDISH EGRET: Not very unusual but always exciting, Reddish Egrets included one at Huntington Beach State Park, SC, during June and July (Bob & Barbara Maxwell, Jack Peachey, sev. obs.), one at Litchfield Beach, SC, June 14 (Bob & Barbara Maxwell), and one at the Portsmouth, NC, flats July 13 (*fide* Taylor Piephoff).

WHITE IBIS: This species wandered inland this summer in a very widespread fashion. Some of the more interesting sightings came from the western portions of North Carolina. The best count was of 30 near the French Broad River, Henderson County, June 15, as noted by Wayne Forsythe. Also seven were near Rosman, Transylvania County, June 24 (*fide* Tom Joyce), and three were found near Boone June 18-19 (Curtis Smalling). Elsewhere one was at Cowans Ford Refuge, Mecklenburg County, June 27 (Danny Swicegood), and one was at Grandview, Forsyth County, July 23 (*fide* Ramona Snavelly).

GLOSSY IBIS: An excellent count of 645 Glossies was made at a large wader roost at the Savannah Spoil Site, Jasper County, SC, July 12 (Steve Calver). This has to be one of the highest totals reported for this species in the Carolinas.

ROSEATE SPOONBILL: Always a noteworthy find in the Carolinas, one was present at Pea Island N.W.R., NC, all summer. First found in late May, the bird was seen off and on at several locations, either South Pond, New Field, or North Pond (Pat Moore, sev. obs.). Another previous report of a spoonbill at Bird Shoal, Beaufort, NC, May 15 (*fide* John Fussell) makes one wonder if the two occurrences involved the same individual.

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WOOD STORK: The sighting of 24 in flight along NC 904 June 29 (Katherine Higgins) was interesting since the location was about 19 miles west of US 17 in Brunswick County! Were these headed to the Sunset Beach summering area? Also one was a complete surprise and quite rare at an impoundment at the upper end of Falls Lake, NC, June 29 (*fide* Brian Bockhahn). Truly inland reports of this species are very rare in North Carolina.

RING-NECKED DUCK: Lingering or summering Ring-necks included one at Par Pond, Savannah River Site, SC, June 7-20 (Paul Champlin and Pete Johnson), two at the Savannah Spoil Site, SC, July 12 (Steve Calver), and a pair at the Jacksonville Wastewater Treatment Plant, Onslow County, NC, in early July (Nell Moore and Jim O'Donnell).

RUDDY DUCK: One was at the Jacksonville W.T.P., NC, in early July (Moore and O'Donnell); and a female with seven chicks provided a rare breeding report for South Carolina at the Savannah Spoil Site June 9 (Steve Calver).

MISSISSIPPI KITE: The number of nesting locations for this species in North Carolina continues to increase. A pair in Goldsboro has been present in the same area for three years in a row, and nesting is suspected (*fide* Eric Dean). A Roanoke Rapids nest has been located (for at least the second year in a row), with young observed this year (Frank Enders); and the Laurinburg area had at least three different known nests (Barbara Gearhart). Also two birds at a nest with at least one young were found in Newport, Carteret County, during July (Susan Arrington, Rich Boyd, Jack Fennell, John Fussell). This nesting represents the first breeding of the species in the outer Coastal Plain for that state.

NORTHERN HARRIER: One was extremely early at the Savannah Spoil Site, SC, July 31, as noted by Steve Calver.

COOPER'S HAWK: Noteworthy coastal summer reports included one near Buck Hall, Francis Marion Nat. For., SC, July 3 (Clay & Pat Sutton, *fide* Harry LeGrand), and one at the Savannah Spoil Site, SC, June 9 and July 12 (Calver).

BROAD-WINGED HAWK: Two were locally rare in summer near Buck Hall, Francis Marion Nat. For., SC, July 3 (Clay & Pat Sutton, *fide* LeGrand). Nesting of this species is very unusual in the outer Coastal Plain of the Carolinas.

GOLDEN EAGLE: A sub-adult was a good find for the summer at Mt. Mitchell, NC, June 4 (Donna Bailey).

AMERICAN COOT: A rare summer report for North Carolina was of one on Lake Osceola, Hendersonville, July 7 (Simon Thompson). Most summer Coots are found in more coastal areas.

AMERICAN AVOCET: Two were rare inland migrants at Falls Lake, NC, July 13 (Kate Finlayson).

WHIMBREL: One provided a very rare inland sighting at Crabtree Lake, Wake County, NC, July 15 (Robert Perkins).

WESTERN SANDPIPER: Hooper Lane in Henderson County, NC, hosted up to five Westerns July 25 (Wayne Forsyth and Bob Olthoff). This species is considerably less frequent than Semipalmateds as inland migrants.

SHORT-BILLED DOWITCHER: Inland Short-billeds of note included a good count of 15 at the Winslow Sod Farm, Scotland Neck, NC, July 25 (Elisa Enders), and three to the west at Hooper Lane, NC, the same day (Wayne Forsythe and Bob Olthoff).

LONG-BILLED DOWITCHER: One was quite early at the Savannah Spoil Site, SC, July 31, as noted by Steve Calver.

COMMON SNIBE: One found in the Mills River, Henderson County, NC, area June 29 (Wayne Forsythe) must have been a non-breeding wanderer, as it was just too early for a fall migrant.

AMERICAN WOODCOCK: One seen on Roanoke Island, NC, July 4 (Lois Bradshaw, *fide* Jeff Lewis) was unusual in that this species is very rarely found during the summer season.

SOUTH POLAR SKUA: This summer's sightings included one off Hatteras, NC, June 4, two off Hatteras July 29 (Brian Patteson *et al.*), and three off Oregon Inlet, NC, July 30 (Focus on Nature Tours).

POMARINE JAEGER: The peak offshore total was the 19 off Hatteras July 29 (Patteson *et al.*). Other reports included two off C. Lookout, NC, July 23 (Brad Carlson and Gordon Smith) and one from shore at Long Beach, NC, June 16 (Ricky Davis).

PARASITIC JAEGER: This species is much less common offshore than the Pomarine. This summer singles were found off Hatteras June 14, 17, 18 (Brian Van Druten) and July 15 (Patteson *et al.*). Also one was seen from shore at Long Beach, NC, June 16 (Ricky Davis).

LONG-BILLED JAEGER: Very rare in South Carolina, two were off Murrell's Inlet June 17 (Jack Peachey and Donna Bailey). There are only about five previous reports for that state.

BONAPARTE'S GULL: Very unusual as a summer lingerer, one was at the Savannah Spoil Site, SC, June 9-26 (Steve Calver).

ARCTIC TERN: This species has been harder to find offshore the last couple of years. Thus of interest was the excellent count of 33 spring migrants off Hatteras, NC, June 3 (Patteson *et al.*).

FORSTER'S TERN: Several inland sightings were reported this summer, including three at Lake Hickory, NC, July 11 (Dwayne and Lori Martin) and two at Falls Lake, NC, July 14 (Brian Bockhahn, Kate Finlayson).

BRIDLED TERN: Ten off C. Lookout, NC, July 23 (Brad Carlson and Gordon Smith) provided a good count for that locality.

SOOTY TERN: This species was present off North Carolina in excellent numbers this summer. The peak counts were 38 on July 15 and 86 on July 29, both off Hatteras (Patteson *et al.*). Six were also found off C. Lookout on July 29, as noted by Brad Carlson and Gordon Smith.

EURASIAN COLLARED-DOVE: This species has pushed ever farther into the Carolinas. It now seems that a group has established itself as far west as the Conover, Catawba County, NC, area, where up to six are present (Dwayne & Lori Martin).

WHITE-WINGED DOVE: One is still holding on at the usual Beaufort, NC, site, at least into June (John Fussell, Simon Thompson *et al.*).

BLACK-BILLED CUCKOO: Once again this species was found in Coastal Plain pocosin habitats during the summer. Three were heard near Great Lake, Croatan Nat. For., NC, June 1 (John Fussell), and two were at Alligator River N.W.R., NC, July 13 (Jeff Lewis). Also one found in the shoreline trees at Lake Phelps, NC, June 3 was probably a late migrant (Merrill Lynch).

OLIVE-SIDED FLYCATCHER: Very rare and most unusual was the presence of an Olive-sided at the Cooper Road W.T.P., Forsyth County, NC, June 25 and July 9 (Ramona Snavelly and Regina Burt). Obviously a non-breeding individual, summer reports in the Carolinas, away from the mountains, are almost unheard of!

WILLOW FLYCATCHER: Late, locally rare migrants were found at Pea Island N.W.R., NC, June 2 (George Armistead *et al.*) and at Ft. Bragg, NC, in early June (Alan Schultz). Also of note, a nest with three eggs of this species was found in the Mills River, Henderson County, NC, area this summer (Wayne Forsythe). Video footage of this nesting provided the county's first documented breeding evidence.

EASTERN PHOEBE: One at Carver's Gap, Roan Mt., NC, June 16 & 30 (Rick Knight) was considered to be a high-elevation occurrence for the species in summer.

SCISSOR-TAILED FLYCATCHER: North Carolina's first documented nesting of this species occurred south of Monroe, Union County. One was found June 1, and by the sixth, two were at a nest. Three young were raised and apparently fledged by July 15 (Eric Olsen, Anne & Blayne Olsen, m. obs.). Other summer reports of Scissor-taileds included one east of Scotland Neck, NC, June 11 (Jeff Lewis, John Wright) and one in Raleigh, NC, July 10 (Michael Davis, *vide* Ricky Davis).

WARBLING VIREO: Two on territory in Cleveland County, NC, in early June (JoAnn Martin and Simon Thompson) were locally rare. Even rarer were the two singing Warblings, first found in the spring at Anilorac Farm in Orange County, NC, that remained until at least July 4 (Will Cook).

RED-BREASTED NUTHATCH: One found along Table Rock Mt. Road, north of Morganton, NC, June 25 (Dwayne & Lori Martin), was at a rather low elevation of about 1200' for this species during the summer.

CEDAR WAXWING: The only eastern summer report of this irregular breeder was of one near Buckhorn Reservoir, Johnston County, NC, June 25 (Ricky Davis).

MAGNOLIA WARBLER: Once again, this species was found on territory at Roan Mt., NC, June 28 (Allan Trently, Len Pardue) and July 1 (Wayne

Forsythe *et al.*). This area is easily the best site for breeding season Magnolias in the state.

BLACK-THROATED BLUE WARBLER: Late migrants included three singing males in the Ft. Bragg, NC, area in early June (Susan Campbell).

YELLOW-RUMPED WARBLER: Very rare and unusual were the late (or non-breeding) Yellow-rumpeds found at Ocracoke, NC, June 17 (Peter Vankevich), York, SC, June 19 (Bill Hilton), and the Savannah River Site, Barnwell County, SC, June 24 (Paul Champlin). Of particular interest, the Ocracoke bird was a singing male that was in the same area where one was reported the previous summer!

BLACKPOLL WARBLER: Late Blackpolls included singles in Franklin County, NC, June 1 (Ricky Davis), at Bodie Island, NC, Lighthouse woods June 1 (Jeff Lewis), and at C. Lookout, NC, June 7 (John Fussell).

AMERICAN REDSTART: One was very late on Roanoke Island, NC, June 7, as noted by Jeff Lewis.

SWAINSON'S WARBLER: One on territory near Littleton, Warren County, NC, June 8 (Harry LeGrand), provided a new breeding season locality for that part of the state.

SCARLET TANAGER: One on the Milltail Creek, Dare County, NC, BBS June 3 (Merrill Lynch) was considered to be a late migrant. Two on the California BBS in Gates County, NC, June 4 (Lynch) were on the eastern edge of the normal breeding range. And a male singing near Mill Creek, Carteret County, NC, June 14-15 (Jack Fennell, *fide* John Fussell) was interesting since there are no confirmed nesting records for the county.

LARK SPARROW: This species has been known to nest in the Sandhills region of North Carolina. This year several were found at Ft. Bragg in early June (Alan Schultz); and a new location for the species was found along Slate Rd., Scotland County, where three adults and five young were seen June 21-28 (Barbara Gearhart, Wayne Irvin). Also of interest was the adult near the French Broad River, Henderson County, NC, July 3 (Wayne Forsythe), which was not far from the area where one was found during the spring!

HENSLOW'S SPARROW: This year's censuses of the breeding populations at the VOA sites near Greenville, NC, totaled 83 singing males at Site A and 57 males at Site B (John & Paula Wright).

PAINTED BUNTING: A female was a late and unexpected visitor at Pea Island N.W.R., NC, June 8 (Jeff Lewis).

DICKCISSEL: Summer season reports included up to three in Cleveland County, NC, June 7 (JoAnn Martin and Simon Thompson), two in Henderson County, NC, July 9 (Marilyn Westphal), and one near Pettigrew State Park, NC, June 25 (Harry LeGrand and Jeff Pippen). Also up to three were at a farm near Margaret, Franklin County, NC, during late May and June (Ricky Davis). First definite breeding evidence for the county was obtained June 25, when a female was seen carrying food repeatedly to an area suspected of harboring a nest.

SHINY COWBIRD: The only sighting this summer was of a male at Ft. Macon, NC, in early July (Randy Newman, *fide* John Fussell).

BALTIMORE ORIOLE: One was considered to be a late migrant at Ft. Bragg, NC, in early June, as noted by Alan Schultz. Much more intriguing was the female oriole seen giving food to a juvenile in Raleigh, NC, July 9 (Mark Thompson, *fide* Harry LeGrand). Although no nest was ever found in the area, this still provided probable breeding evidence for the Raleigh area, which is very rare that far east.

RED CROSSBILL: Interesting summer reports included three at Gorges State Park, Transylvania County, NC, June 1 (Harry LeGrand), up to 30 at Balsam Gap on the Blue Ridge Parkway, Buncombe County, NC, June 4 (Wayne Forsythe *et al.*), and an impressive flock of 80 on Roan Mt., NC, June 16 (Rick Knight).

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Articles

Shorebird Assemblages of the Cape Romain Region, South Carolina. *Sarah L. Dodd and Mark D. Spinks* 45

General Field Notes

Incidental Cache Use by the Brown Thrasher, with Notes on Secondary Cache Use by Additional Avian Species. *Mark J. Komoroski* 68

Briefs for the Files, Fall 2000

71

Cover (16-day-old Tufted Titmouse, Just Before Fledging) by Bill Duyck, Asheville, NC

Shorebird Assemblages of the Cape Romain Region, South Carolina

Sarah L. Dodd

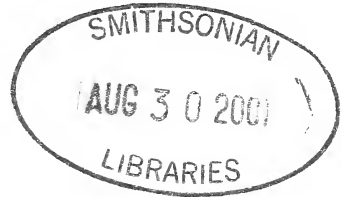
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Abstract

We examined abundance and distribution patterns of shorebirds (Charadriiformes: Charadrii) using natural coastal wetlands in the Cape Romain region, South Carolina. Overall, we observed 22 species and 247,574 shorebirds, most of which were Dunlin (31.7%; *Calidris alpina*) and Short-billed Dowitcher (26.5%; *Limnodromus griseus*). Maximum [38,245 (516 birds/km)] and minimum [3,629 (48 birds/km)] counts of shorebirds occurred at the end of March and June, respectively. Species composition and patterns of abundance differed significantly between outer beaches and inner estuarine habitats. *Calidris* sandpipers [Dunlin, Sanderling (*Calidris alba*), Red Knot (*Calidris canutus*), and small sandpipers (*Calidris mauri*, *minutilla*, and *pusilla*)] and plovers [(Black-bellied (*Pluvialis squatarola*), Piping (*Charadrius melodus*), Wilson's (*Charadrius wilsonia*), and Semipalmated (*Charadrius semipalmatus*)] used mostly beaches and sand bars. By contrast, large Scolopacids predominated on oyster banks and docks [Marbled Godwit (*Limosa fedoa*), Willet (*Catoptrophorus semipalmatus*), and Short-billed Dowitcher] or high sand/mud flats [Whimbrel (*Numenius phaeopus*)] and American Oystercatcher (*Haematopus palliatus*) used mostly oyster banks. For eight species (American Oystercatcher, Short-billed Dowitcher, Dunlin, Willet, Whimbrel, Wilson's Plover, and Semipalmated Plover), peak counts of the Cape Romain region during spring and/or fall equaled or exceeded 15% of respective species' eastern U. S. totals (based on International Shorebird Survey censuses at almost 800 sites east of the 105th Meridian from 1974-1993). Exceptionally high proportions of eastern U. S. totals resulted for spring and fall migrating American Oystercatcher ($\geq 46\%$) and Marbled Godwit ($\geq 20\%$), and spring migrating Short-billed Dowitcher (30%) and Semipalmated Plover (30%). We conclude that the Cape Romain region is a critical migration-stopover and wintering area for shorebirds using the Atlantic Coast. Moreover,

our finding that composition of shorebird assemblages varied considerably between outer beach and inner estuarine habitats suggests that the 5 - 8 km mosaic of habitats stretching from outer barrier islands to inland shallow bays contributes to the high diversity and abundance of shorebirds using the region.

Introduction

Migrant shorebirds rest and replenish fat reserves at stopover areas, predominately coastal wetland habitats with apparently high concentrations of invertebrate prey (Morrison 1984, Clark *et al.* 1993, Dinsmore *et al.* 1998, Page *et al.* 1999). Several authors (*e.g.* Senner and Howe 1984, Myers *et al.* 1987, Bildstein *et al.* 1991, Harrington 1995) have addressed the vulnerability of shorebird populations (*e.g.* North American Red Knots; Clark *et al.* 1993) that concentrate at only a few stopover sites during migration. Moreover, some authors (Howe *et al.* 1989, Clark *et al.* 1993, Morrison *et al.* 1994, Harrington 1995, Gill *et al.* 1995) have reported significant declines in Western Hemispheric populations of several species of shorebirds (*e.g.* Black-bellied Plover, Sanderling, Whimbrel, Red Knot, Short-billed Dowitcher, Semipalmated Sandpiper), not including species [Snowy Plover (*Charadrius alexandrinus*), Piping Plover, and Eskimo Curlew (*Numenius borealis*)] listed as Federally Threatened or Endangered (Harrington and Perry 1995). The creation of the Western Hemisphere Shorebird Reserve Network (WHSRN; Myers *et al.* 1987, Bildstein *et al.* 1991) in 1985 initiated a large-scale effort to conserve shorebirds by identifying wetlands that support significant concentrations of shorebirds (Harrington and Perry 1995, Page *et al.* 1999). Wetlands are designated as critical habitat reserves for a species or group of taxa based on overall annual numbers or proportions of species' flyway populations (Harrington and Perry 1995). Examples of important WHSRN reserves are Delaware Bay (Clark *et al.* 1993), Bay of Fundy (Hicklin 1987), and San Francisco Bay (Page *et al.* 1999).

Although interior regions are gaining recognition (*e.g.* Skagen and Knopf 1993, Davis and Smith 1998, Warnock *et al.* 1998), research in North America has focused on evaluating the importance of stopover sites in coastal Atlantic and Pacific flyways (Skagen and Knopf 1993). Despite this emphasis on coastal corridors, Atlantic Coast stopover sites from Florida to North Carolina remain largely undocumented, with the exception of the Outer Banks, North Carolina (Dinsmore *et al.* 1998) and Cape Romain-Santee Delta region, South Carolina (Marsh and Wilkinson 1991a, Weber and Haig 1996). All three southern Atlantic studies reported significant concentrations of several species of shorebirds. Moreover, Cape Romain National Wildlife Refuge has recently been designated an International WHSRN reserve.

Despite Cape Romain's recognition as a WHSRN reserve, abundance estimates for shorebirds using the region are conservative. Marsh and Wilkinson (1991a) surveyed little beach habitat and included no coverage of several barrier islands (Bull, Capers, and Dewees) or outer beach habitat on the

region's largest barrier island (Cape Island). Consequently, Marsh and Wilkinson did not present data for small *Calidris* sandpipers, Sanderling, Piping Plover, and Wilson's Plover. They also reported that their surveys of Dunlin, Red Knot, and Black-bellied Plover were inadequate. Almost a decade later, we initiated a study of shorebirds in the Cape Romain region to obtain current baseline estimates of abundance for all species of shorebirds. In this paper, we examine patterns of migrating and wintering assemblages of shorebirds using natural coastal wetlands in the Cape Romain region with the following objectives: 1) to evaluate spatial variation in composition (overall species composition and abundance) of shorebird assemblages; 2) to assess the relative importance of the region to migrant shorebirds by comparing maximum counts from this study to those from other Atlantic Flyway sites; and 3) to discuss conservation implications, including potential threats to shorebirds using the region.

Study Area and Methods

We studied shorebirds (Charadriiformes: Charadrii) on the central coast of South Carolina in the Cape Romain region (32°49' - 33°05' N, 79°20' - 79°45' W), which encompasses Cape Romain National Wildlife Refuge, Capers Island State Heritage Preserve, Dewees Island, and public salt marshes bordering the Atlantic Intracoastal Waterway (AIW) from McClellanville to Isle of Palms (Fig. 1). The Cape Romain region is characterized by several barrier islands with predominately sandy beaches that are separated from the mainland by extensive (5 - 8 km) *Spartina alterniflora* marsh, punctuated by shallow bays with expansive mudflats and oyster (*Crassostrea virginica*) beds (Marsh and Wilkinson 1991a). At high tide, shorebirds congregate on oyster banks (narrow, elongated mounds of elevated oyster shell) bordering bays, the AIW, and small estuarine islands; docks and high flats bordering the AIW; and exposed substrate on beaches and sand bars. We surveyed shorebirds using all exposed habitat on the following routes (76 km of linear shoreline with exposed substrate at high tide): 1) *Northeastern (NE)*: Horsehead Creek, Deepwater Point, and Casino Creek oyster banks; Cape and Racoon Key barrier island beaches; Cape Island inlet and Lighthouse Island South sand bars; White Banks oyster banks, and Marsh Island sand spit; 2) *Southwestern (SW)*: oyster banks, high sand/mud flats, and docks bordering both sides of the AIW from Jeremy Creek (Marker 35) to just south of Dewees Inlet (Marker 115); and 3) *Southeastern (SE)*: southwest Bull's Bay oyster banks; Bull, Capers, and Dewees barrier island beaches; and Price Inlet sand bar. All sites are federal or state owned and uninhabited, with the exceptions of Dewees Island, which is privately owned and developed with relatively low density housing, and private docks bordering the mainland side of the AIW. All sites are accessible by boat only, with the exception of docks. We did not survey Lighthouse Island or boneyard forest habitat on Capers and Bull islands because at high tide these sites had no exposed habitat used by shorebirds (Dodd and Spinks, pers.

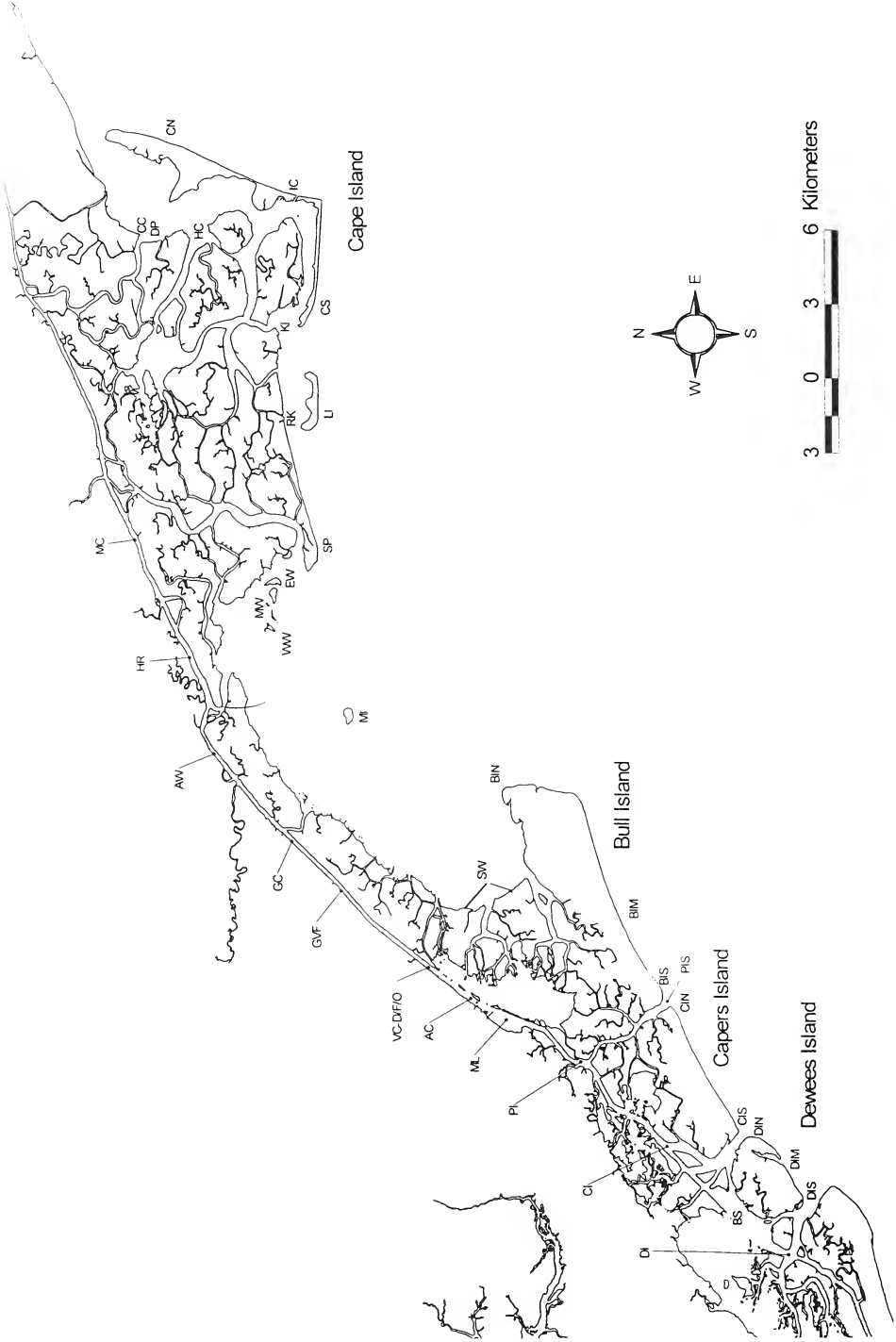


FIG. 1. Location of sites censused in the Cape Romain region on the central coast of South Carolina. See Table 2 for location codes.

observ.). We also did not survey New and Bird islands because high tides covered them during the study.

Bird Censuses.

From March - October 1997, January - May 1998, and November and December 1998, we conducted standardized censuses once each month within 2.5 hours of high (≥ 1.7 m) spring tides for three consecutive days [$n = 15$ sets (routes 1 - 3) of censuses]. We surveyed shorebirds at high tide because birds congregated on fewer exposed sites than at lower tides, and access to the region is extremely limited at low tide. We randomly chose the day to census each route from the three days with the highest daylight tides for each month. If weather (*e.g.* high winds or heavy rainfall) prevented us from completing a route, we censused the entire route on the next day ($n = 2$ censuses). However, several days of extreme weather conditions prevented us from censusing the SE route in early March 1998 and from completing half the NE route (from Raccoon Key to Marsh Island) in September 1997. In addition, extremely shallow water in Bull's Bay resulting from winds pushing tides out early prevented us from surveying White Banks ($n = 4$) and Marsh Island ($n = 6$) several times. On completed censuses, however, Bull's Bay islands were used by a small proportion (8%) of shorebirds observed on the NE route.

We censused shorebirds from an outboard motor boat or all-terrain vehicle (ATV) using 8.5 X 44 mm binoculars and a 20 X spotting scope. We censused the large offshore sand bar (Lighthouse Island South) and all barrier island beaches by ATV, with the exception of Raccoon Key and the northeast point of Bull Island, where treacherous waters prevented unloading an ATV onto the beach. We unloaded the ATV from the boat onto the northwest end of each beach and maneuvered the ATV parallel to the shoreline towards the southwest end of the beach, where we reloaded the ATV and crossed the inlet to the next beach. We observed birds with the ATV motor turned off. We censused all other sites from an outboard motor boat. All sites surveyed from the boat were narrow, allowing for complete coverage. After encountering birds, the boat handler positioned the boat parallel to the shoreline approximately 20 - 40 m away, and alternated between turning off the engine and moving the boat forward until the observer had recorded data for the entire flock. We checked the marsh-side of high oyster banks for additional birds by standing on top of the oyster bank.

To minimize variation among censuses due to human factors, we used the same observer (S. Dodd) and boat operator (M. Spinks) for all censuses. After encountering shorebirds, we recorded data on species, abundance, and behavior (foraging, loafing, preening, alert, flying, or other). We estimated large flocks (>150 birds) by counting across the flock in five's for each species present. We counted large flocks at least twice and from at least two locations. We counted flying birds only when they flew prematurely from unsurveyed sites; we estimated flying birds by counting across the flock in tens for each species present.

We identified most shorebirds to species, but sometimes due to poor viewing conditions we could not distinguish among species of Least, Western, and Semipalmated sandpipers. Consequently, when necessary, we used the taxonomic group, 'small sandpipers' for observations of these species. Of the difficult to distinguish *Limnodromus* genus, we identified only Short-billed Dowitchers during the study, with the exception of one Long-billed Dowitcher (*Limnodromus scolopaceus*) identified by call during a pilot survey in February 1997. Similarly, Marsh and Wilkinson (1991a) reported Long-billed Dowitchers only on one census, but in July. Hereafter, we refer to all dowitchers observed in this study as Short-billed Dowitchers, with the caveat that we may have overlooked some Long-billed Dowitchers.

Human Disturbance.

We recorded the number of people and dogs at each site during censuses and whether or not birds flushed due to disturbance from humans or dogs. During a pilot census of the AIW in February 1997, we observed that shorebirds using oyster banks at high tide often flushed in response to boat wakes cresting over the bank. Consequently, we quantified boat traffic adjacent to oyster banks by counting the number of boats on the SW route per census period.

Data Analysis.

We combined observations of Least, Western, and Semipalmated sandpipers and unidentified small sandpipers into the 'small sandpiper' group. Hereafter, we refer to this taxonomic group as if it were a species. To represent an annual cycle, we used the most contiguous grouping of censuses from June - October 1997; November and December 1998; and January - May 1998. For the SE route, however, we used data from a census conducted in March 1997 to replace the missing (see above) March 1998 census.

For each site, we summarized abundance data by totaling the number of birds for each species from the year divided by the corresponding km of linear shoreline and number of censuses. We analyzed spatial variation in composition (overall species composition and abundance) of shorebird assemblages using Detrended Correspondence Analysis (DCA; Hill 1979), an ordination technique based on reciprocal averaging, but without the corresponding arch distortion in the axes (Gauch 1982). We used ordination because it represents community structure [a matrix of samples (sites) by species (shorebirds)] in low dimensional space by positioning samples with similar composition close together while locating samples with great differences in composition far apart (Gauch 1982). Simultaneously, species that used sites similarly are assigned similar axis scores, whereas species that inhabited different sites receive disparate axis scores. DCA axes are scaled in units of average standard deviation of species turnover so that equal distances in ordination space correspond to equal variation in species composition; a 50% change in species

composition of samples occurs around one standard deviation, and a complete turnover in species composition occurs over four standard deviations (Gauch 1982). We excluded from the analysis three species (Black-necked Stilt, Lesser Yellowlegs, and Killdeer) that occurred less than five times because inclusion of rare species confounds ordination results (Gauch 1982). In addition, we removed Price Inlet sand bar from the analysis because it was exposed at high tide for only two months. See Colwell and Dodd (1995) and Patten and Rotenberry (1998) for additional analyses of bird communities using DCA. We evaluated variation in axes scores using Wilcoxon 2-Sample Tests with an alpha level of significance of < 0.05 (PC-SAS, Vers. 6.12, SAS 1992).

Maximum Counts.

For each species, we determined the following peak counts using all censuses: 1) a maximum daily count, using the highest count from one of three routes for spring, fall, and winter; and 2) a maximum count of the region, using the highest count from all three routes combined for each season. We evaluated the relative importance of Cape Romain as a stopover site by comparing maximum counts with those from International Shorebird Survey (ISS, Manomet Observatory for Conservation Science) censuses conducted at almost 800 sites east of the 105th Meridian, U.S. from 1974 - 1993 (Harrington and Perry 1995). By adding maximum counts from ISS sites, Harrington and Perry (1995) calculated a "national" (mostly Atlantic Flyway) spring and fall "total" for each species. Using these totals as an index of eastern U.S. populations, we calculated species' proportions by dividing maximum counts into corresponding ISS seasonal totals (with the Cape Romain count added in).

Results

Community Patterns.

During one annual cycle, we observed 22 species and 247,574 shorebirds using the Cape Romain region (Table 1). Dunlin (31.7%) and Short-billed Dowitcher (26.5%) comprised most of the birds, followed by small sandpipers (11.5%), and Red Knot (7.5%). Overall, most (66.8%) shorebirds loafed, whereas fewer birds preened (12.9%), foraged (9.8%), flew (7.6%), or exhibited alert (2.6%) behaviors at high tide. However, more Spotted Sandpipers and Black-necked Stilts foraged than loafed, and almost half the Piping Plovers foraged.

We observed shorebirds throughout the year with maximum [38,245 (516 birds/km)] and minimum [3,629 (48 birds/km)] counts occurring at the end of March and June, respectively (Fig. 2). Winter (November, December, and January) counts approached the maximum spring count when peak numbers of several species (Marbled Godwit, Short-billed Dowitcher, Dunlin, Black-bellied Plover, and American Oystercatcher) occurred.

Composition (overall species composition and abundance) of shorebird assemblages varied considerably among sites (Fig. 3). Axes one and two explained 68% and 25% of variation in data, respectively. Axis one measured

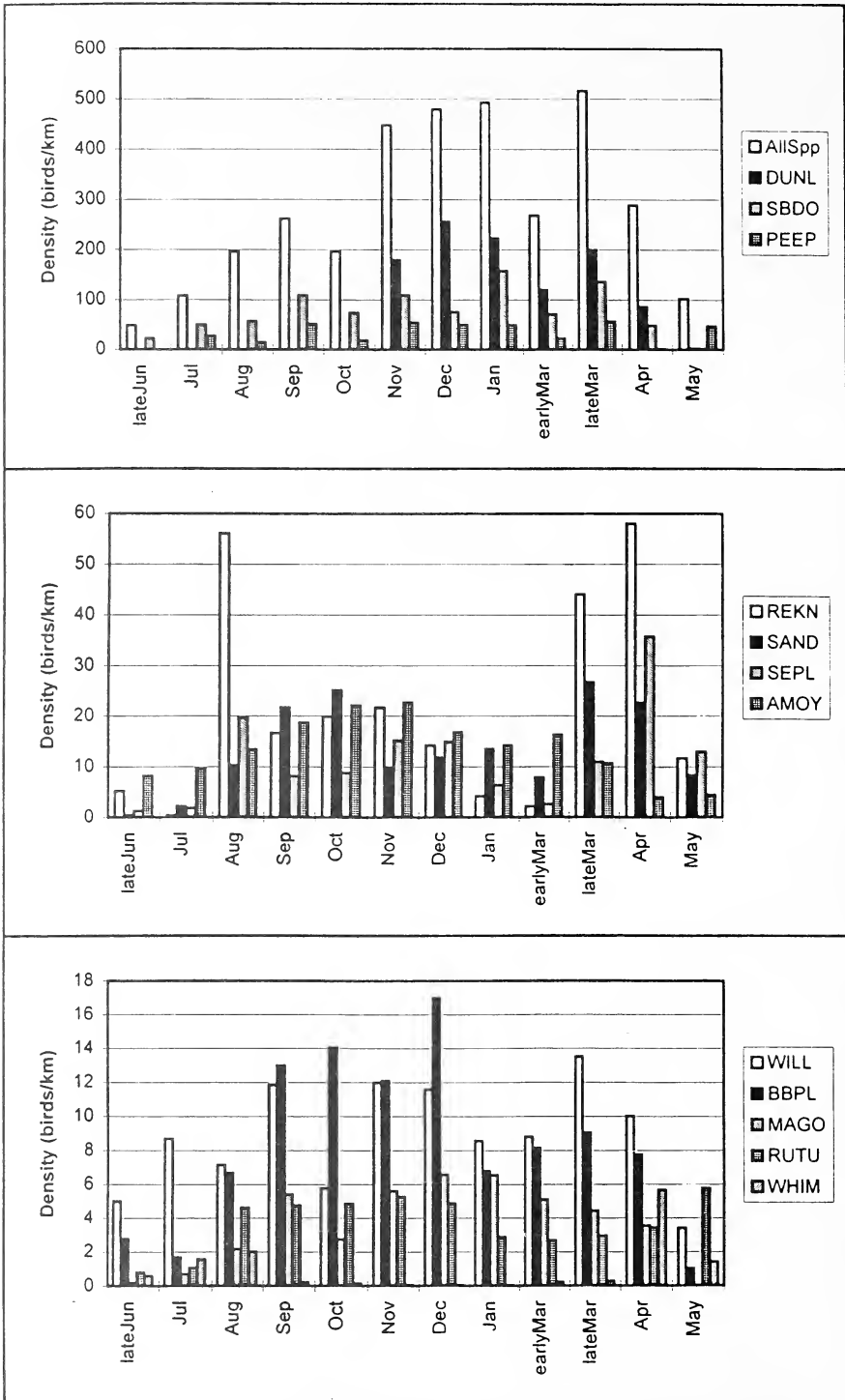


FIG. 2. Seasonal variation in abundance (birds/km) of shorebirds using the Cape Romain region, SC, from June - October 1997, November and December, 1998, and January - May 1998; data presented for the 12 most abundant species (see Table 1 for codes) and total assemblage of shorebirds (All Spp.).

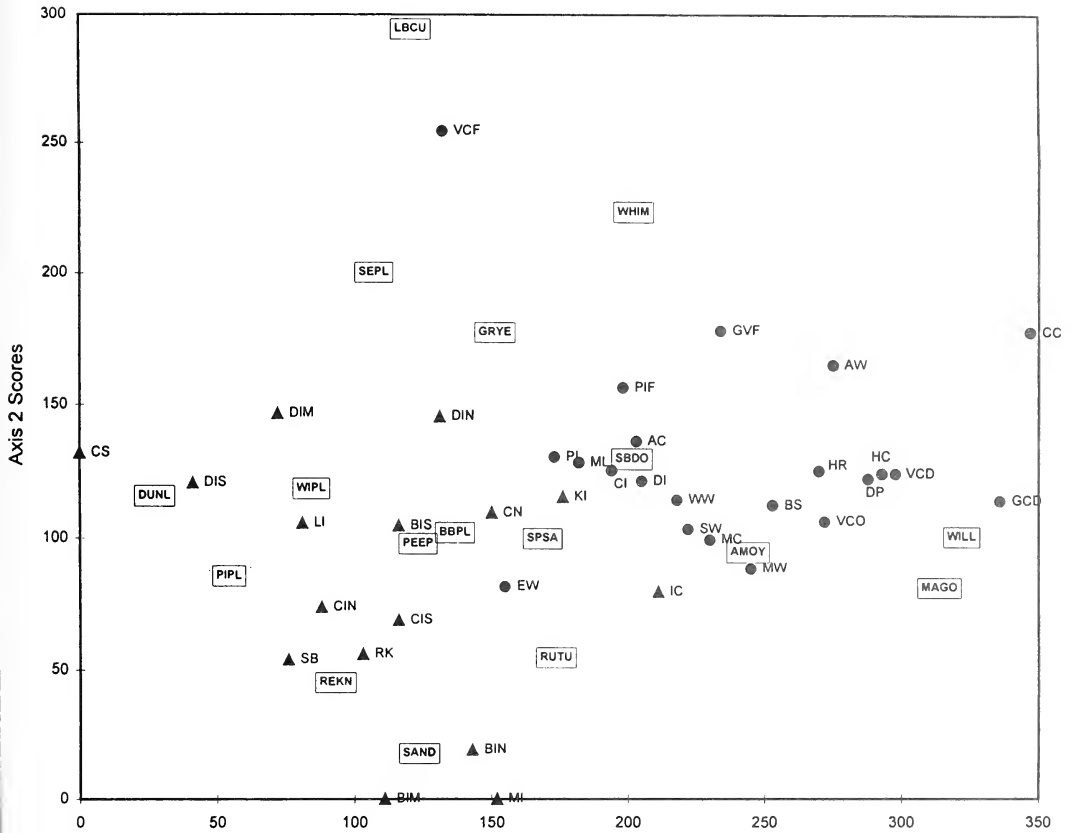


FIG. 3. Spatial variation in composition of shorebird assemblages using outer beach (triangles) and inner estuarine/AIW (circles) habitats as portrayed by Detrended Correspondence Analysis. See Tables 1 and 2 for species and site codes, respectively.

3.4 standard deviations, representing a gradient of high (> 50%) species turnover from outer beaches and sand bars to estuarine and AIW sites (e.g. oyster banks and docks; hereafter, referred to as inner habitats). Spanning 2.5 standard deviations, Axis two also represented a gradient exceeding a half change in species composition from outer to inner habitats. Composition differed significantly between outer ($n = 16$) and inner ($n = 22$) sites (axis 1 scores: $z = -4.8$, $P = 0.0001$; and axis 2 scores: $z = -2.85$, $P = 0.004$). *Calidris* sandpipers (Dunlin, Sanderling, Red Knot, and small sandpipers) and all species of plovers used mostly outer beaches and sand bars. By contrast, large Scolopacids and American Oystercatcher used mostly inner habitats: Short-billed Dowitcher, Willet, and Marbled Godwit predominated on oyster banks and docks; Whimbrel frequented high sand/mud flats and oyster banks; and American Oystercatcher used mostly oyster banks. Greater Yellowlegs, Spotted Sandpiper, and Ruddy Turnstone used many different habitats, and thus these species occupy the center of ordination space (Fig. 3; see Gauch 1982). At outer beaches and sand bars, species richness and densities (birds/km) varied from 2.9 (Deweese Is.-SW end) to 11.9 (Cape Is.-SW end) species and 29.3 (Bull Is.-middle) to 1406.3 (Deweese Is.-NE end; 3093.5 on Price Inlet sand bar when exposed) birds, respectively (Table 2). At inner habitats, species richness and densities ranged from 0.4 (Casino Creek oyster banks) to 7.9 (Price Inlet oyster banks) species and 1.2 (Matthews Creek oyster banks) to 1888.9 (Graham Creek docks) birds, respectively.

Human Disturbance.

We observed humans flushing shorebirds during few (7%, $n = 3$) censuses. In addition, we usually observed no people using sites on NE (median = 0, range = 0 - 32) and SW (median = 0, range = 0 - 2) routes, whereas we often observed a few people using sites on the SE route (median = 3, range = 0 - 57). We only observed dogs on the SE route (median: 0, range: 0 - 3). Boat traffic on the AIW ranged from 1.2 to 31.8 boats/h (median = 6.6 boats/h).

Relative Importance of the Cape Romain Region.

Based on maximum daily counts, nine species (American Oystercatcher, Marbled Godwit, Short-billed Dowitcher, Wilson's Plover, Dunlin, Willet, Whimbrel, Semipalmated Plover, and Red Knot) used one of three routes during fall and/or spring in numbers exceeding 5% of eastern U.S. totals (Harrington and Perry 1995) (Table 3). For these same species, peak counts from the entire region equaled or exceeded 15% of spring and/or fall eastern U.S. totals, with the exception of counts for Red Knot, which approached these proportions during fall (13%). Exceptionally high proportions of eastern U.S. totals resulted for regional peak counts of spring and fall migrating American Oystercatcher ($\geq 46\%$) and Marbled Godwit ($\geq 20\%$), and spring migrating Short-billed Dowitcher (30%) and Semipalmated Plover (30%).

Discussion

Based on findings from this study and Marsh and Wilkinson (1991a), we conclude that the Cape Romain region is one of the most important migration-stopover and wintering areas for shorebirds using the U.S. Atlantic Coast. The Cape Romain National Wildlife Refuge has recently been recognized as a WHSRN reserve of "international importance" for meeting the criteria of 100,000 shorebirds annually or 15% of a species' flyway population. Harrington *et al.* (1989) ranked the importance of ISS marine sites east of the 105th meridian U.S., based on each stopover's combined species' proportions of spring and fall "national totals" (also in Harrington and Perry 1995, see methods). Using this index of relative importance, the Cape Romain region (Table 3) ranked second only to Delaware Bay in spring and higher than all presented Atlantic Coast sites during fall. Harrington and Perry (1995) devised another index of relative importance that considers factors (*e.g.* overall species richness and presence of species shown in the literature to be declining significantly) additional to numbers of birds. Based on Harrington and Perry's index, Cape Romain (score = 90, using daily or regional peak counts) has a higher "critical value" than Delaware Bay (score = 65), and all potential Pacific, Atlantic, and Gulf Coast WHSRN sites ($n = 34$ with complete data) presented in Harrington and Perry (1995). Delaware Bay is considered one of the most important stopover areas in the Western Hemisphere (Senner and Howe 1984) and has been designated a Hemispheric WHSRN reserve for its importance to spring migrating Semipalmated Sandpiper, Ruddy Turnstone, Red Knot, and Sanderling (Clark *et al.* 1993). From our study, species' proportions for American Oystercatcher in both spring and fall and Short-billed Dowitcher and Semipalmated Plover in spring meet the criteria of 30% or more of a species' flyway population (Table 3) for designation as a hemispheric reserve. Consequently, we recommend that the Cape Romain region be redesignated as a Hemispheric WHSRN reserve and that sites exterior to but bordering the Cape Romain National Wildlife Refuge (Capers and Dewees islands; salt marshes and bays west of the AIW, and oyster banks bordering both sides of the AIW from McClellanville to Isle of Palms) be included in the reserve.

A decade ago (1988-89), Marsh and Wilkinson (1991a) showed that the Cape Romain region supported large concentrations of several species, especially American Oystercatcher and Marbled Godwit. In addition to corroborating their findings, our study documents the importance of the region to several other species, including Dunlin, Short-billed Dowitcher, Wilson's Plover, Semipalmated Plover, and Sanderling. Our study's NE and SW routes were similar to Marsh and Wilkinson's two routes, with the exception that our study covered additional habitat (the outer beach on Cape Island and Mathew's to Awendaw creeks on the AIW). None of the barrier island beaches on our SE route were censused by Marsh and Wilkinson. Despite these differences in area surveyed, some comparisons between counts are warranted. With increased survey effort from our study, peak counts for most species exceeded those from

Marsh and Wilkinson, especially for species (*e.g.* Dunlin) that inhabited predominately beach habitats. However, we obtained lower peak counts of American Oystercatcher and Marbled Godwit, even when considering regional totals from our study. Marsh and Wilkinson's peak counts of American Oystercatcher (2,482) and Marbled Godwit (735) exceeded those from our study (Table 3) by approximately 30%. Moreover, five of their six counts of oystercatchers over two winters approximated or exceeded 2,000 birds, whereas our mid-winter counts ranged from 1,035 to 1,707 oystercatchers. Spring and early fall counts of American Oystercatcher, however, are similar between studies. Marsh and Wilkinson's censuses of wintering Marbled Godwit consistently exceeded 500 birds, whereas our winter counts ranged from 369 to 480 godwits.

Differences between studies (*i.e.* methodology and/or observers) might account for lower counts. For example, Marsh and Wilkinson often censused godwits at their largest roost both before and after high tide, whereas we censused each site only once. Marsh and Wilkinson's before and after high tide counts ($n = 5$) suggest an increase (of up to 73%) in godwit numbers one to two hours after high tide. We typically arrived at sites used by most Marbled Godwit (Graham and Venning creeks) around one hour before high tide, which might explain our study's lower counts. It is more difficult to attribute lower counts of American Oystercatcher to variation among observers because both studies counted oystercatchers individually (C. Marsh, pers. correspondence) due to their tendency of loafing in small numbers. Of interest, other censuses (South Carolina Dept. of Natural Resources, unpubl. data) conducted in the Cape Romain region during late fall and winter in 1991 ($n = 4$) and 1992 ($n = 3$) using identical routes and boat operators (and some of the same observers) to Marsh and Wilkinson also obtained lower Marbled Godwit and American Oystercatcher counts (peak counts = MAGO: 321₁₉₉₁, 393₁₉₉₂ ; AMOY: 1,773₁₉₉₁, 2,008₁₉₉₂) than Marsh and Wilkinson (1991a).

Limited evidence suggests that the reduced counts of American Oystercatcher since 1988/89 may be attributed to population changes. Marsh and Wilkinson (1991b) reported that numbers of American Oystercatcher using the Cape Romain region declined significantly following Hurricane Hugo (and in the subsequent winter), which came ashore at Cape Romain in 1989 with winds exceeding 100 knots. Marsh and Wilkinson suspected that approximately 400 American Oystercatchers died in the storm. Moreover, nesting effort for American Oystercatcher appears to have declined in the Cape Romain region since 1989 (based on a 50% decline in overall number of nests from 1989 to 1998; SCDNR, unpubl. data). Indeed, summarized Atlantic Coast data (Davis 1999) suggest that breeding numbers of American Oystercatcher are low or declining from Virginia south to Florida. Reduced recruitment to south Atlantic Coast populations combined with the death of several hundred adults could conceivably result in a smaller population a decade later. Alternatively, lower counts may have resulted from distributional shifts (Myers et al. 1987) to other

wintering areas, perhaps initiated by detrimental changes to foraging habitat by Hurricane Hugo.

Conservation Implications.

Our finding that composition of shorebird assemblages varied significantly between beach and estuarine/AIW habitats suggests that the 5 - 8 km mosaic of habitats stretching from outer barrier islands to inland bays contributes to the high diversity and abundance of shorebirds using the Cape Romain region. Thus, we suggest that regional biologists and land managers consider potential degradation to both beach and estuarine/AIW habitats when creating future conservation plans for shorebirds. Even private docks bordering the AIW provided habitat at high tide for large congregations of shorebirds, especially Willet, Marbled Godwit, and Short-billed Dowitcher. It is noteworthy that docks provided a refuge from boat wakes (from up to 31.8 boats/h), which often crest over oyster banks at high tide (Dodd and Spinks, pers. observ.). Because shorebirds only used open (*i.e.* no railings) docks, we recommend that new dock permits adjacent to the AIW be issued with the stipulation that no railings be added.

Several species used oyster banks bordering the AIW, bays, and estuarine islands, including American Oystercatcher, which predominated on these elevated oyster shell mounds at high tide. Mining of oyster shell deposits has been an important industry in other areas (*e.g.* the Gulf Coast region) where shell is used for multiple purposes, including construction aggregate and preparation of cement (Anderson *et al.* 1979). Research is currently being conducted to evaluate the use of proteins in oyster shell for various products, including highly absorbent diapers (<http://seagrant.orst.edu/plain/scripts/597.html>). Consequently, there may be an increased demand for harvesting of oyster shell in the future. We urge state lawmakers to improve existing legislation to prevent the harvest of oyster shell deposits from South Carolina's estuaries. Shorebirds also used high sand/mud flats bordering the AIW, including migrating Whimbrel, which frequented flats in large numbers during spring. Runoff from increasing housing development adjacent to the mainland side of the AIW could affect the foraging quality of these flats.

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Mixed species flocks of mostly *Calidris* sandpipers and plovers (including the threatened/endangered Piping Plover) inhabited beaches and sand bars. A potential threat to shorebirds using beaches and associated flats and sand bars is disturbance from humans, including increasing local ecotourism and use of personal watercraft and sea kayaks. During censuses, we regularly observed low numbers of humans using beaches, especially north of Bull Island. However, based on the projected 0.3% annual increase of people moving to the coast of South Carolina, and an additional 17,700,000 annual visitors (S.C. Department of Health and Environmental Control 1998), we anticipate that human use of the Cape Romain area will increase. We recommend that managers monitor human use of beaches and periodically adjust existing rules and the extent of law enforcement to ensure protection of shorebirds from human disturbance.

Finally, the apparent decline in wintering numbers of American Oystercatcher compared to a decade ago is worrisome considering Marsh and Wilkinson's (1991a) finding that the Cape Romain region is the major North American wintering site for American Oystercatcher. We recommend that a study be conducted investigating potential declines in local and regional populations of American Oystercatcher.

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TABLE 1. Relative abundance and behavior of shorebirds observed in the Cape Romain region, SC during an annual cycle (June - October 1997, November - December 1998, and January - May 1998^a).

Species (Code)	Total Abundance	% Total Abundance	%					
			Loaf	Preen	Forage	Fly	Alert	Other
Dunlin, <i>Calidris alpina</i> (DUNL)	78,472	31.70	62.8	16.7	11.7	7.8	0.5	0.5
Short-billed Dowitcher ^b , <i>Limnodromus griseus</i> (SBDO)	65,685	26.53	74.1	09.8	1.0	10.4	4.6	0.3
Small sandpipers ^c , <i>Calidris mauri</i> , <i>minutilla</i> , and <i>pusilla</i> (PEEP)	28,401	11.47	63.2	14.2	12.8	9.0	0.8	0.03
Red Knot, <i>Calidris canutus</i> (REKN)	18,537	7.49	67.7	12.2	10.5	6.1	3.5	0.0
American Oystercatcher, <i>Haematopus palliatus</i> (AMOY)	11,618	4.69	82.7	7.2	0.8	2.9	5.9	0.5
Sanderling, <i>Calidris alba</i> (SAND)	11,499	4.64	44.0	38.7	15.1	2.3	0.0	0.0
Semipalmated Plover, <i>Charadrius semipalmatus</i> (SEPL)	10,086	4.07	52.3	19.5	22.5	4.2	0.6	0.8
Willet, <i>Catoptrophorus semipalmatus</i> (WILL)	7,681	3.10	73.0	12.7	4.1	3.0	7.2	0.0
Black-bellied Plover, <i>Pluvialis squatarola</i> (BBPL)	7,193	2.91	82.8	1.9	5.7	6.1	3.4	0.04
Ruddy Turnstone, <i>Arenaria interpres</i> (RUTU)	3,178	1.28	63.2	2.7	27.9	5.0	0.7	0.5
Marbled Godwit, <i>Limosa fedoa</i> (MAGO)	3,085	1.25	76.6	7.4	0.6	0.8	14.6	0.0
Whimbrel, <i>Numenius phaeopus</i> (WHIM)	899	0.36	57.4	20.9	15.3	5.6	0.8	0.0
Wilson's Plover, <i>Charadrius wilsonia</i> (WIPL)	758	0.31	56.1	5.1	11.1	7.6	19.3	0.0
Unidentified sandpipers, <i>Calidris</i> spp.	152	0.06	1.3	0.0	55.3	42.1	0.0	1.3

TABLE 1. Continued.

Species (Code)	Total Abundance	% Total Abundance	%				
			Loaf	Preen	Forage	Fly	Alert
Spotted Sandpiper, <i>Actitis macularia</i> (SPSA)	109	0.04	10.2	0.0	49.5	38.5	1.8
Greater Yellowlegs, <i>Tringa melanoleuca</i> (GRYE)	81	0.03	80.3	0.0	17.3	1.2	1.2
Piping Plover, <i>Charadrius melodus</i> (PIPL)	79	0.03	46.8	5.1	44.3	2.5	1.3
Long-billed Curlew, <i>Numenius americanus</i> (LBCU)	26	0.01	38.5	23.1	26.9	3.8	7.7
Lesser Yellowlegs, <i>Tringa flavipes</i> (LEYE)	18	0.01	0.0	94.5	5.5	0.0	0.0
Killdeer, <i>Charadrius vociferus</i> (KILL)	14	0.01	57.1	0.0	28.6	14.3	0.0
Back-necked Stilt, <i>Himantopus mexicanus</i> (BNST)	3	0.001	33.3	0.0	66.7	0.0	0.0
Total Shorebirds	247,574		66.8	12.9	9.8	7.6	2.6

^a March 1997 data used for SE route because several days of inclement weather prevented censusing this route in March 1998.

^b May include some Long-billed Dowitchers (*Limnodromus scolopaceus*).

^c Of which, 34, 11, and 0.4 % identified to Western, Semipalmated, and Least sandpipers, respectively.

TABLE 2. Description of sites censused in the Cape Romain region, SC and their use by shorebirds during an annual cycle (June to October 1997, January to May 1998, and November and December 1998).

Site (Site Code)	Site Description	Linear (km) Shoreline ^a	Mean (SD) Shorebird Abundance	Mean (SD) Shorebird Density	Mean (SD) Species Richness ^b
Beach Sites:					
Cape Island-northeast (CN)	sandy beach-barrier island	9.3	968.6 (667.8)	103.8 (71.6)	9.7 (2.2)
Cape Island-inlet (IC)	sand bar	1.0	93.3 (119.2)	96.2 (122.9)	3.4 (2.6)
Cape Island-southwest (CS)	sandy beach-barrier island	3.9	1707.7 (1763.5)	442.4 (456.9)	11.9 (1.5)
Lighthouse Island South (LI)	sand bar	1.9	1887.0 (2149.6)	977.7 (1113.8)	7.0 (2.7)
Raccoon Key-Key Inlet (KI)	sandy beach-barrier island	2.6	239.6 (281.2)	93.2 (109.4)	5.7 (4.0)
Raccoon Key-middle (RK)	sandy beach-barrier island	5.8	1006.2 (931.7)	173.8 (160.9)	8.2 (3.4)
Raccoon Key-Sandy Point Beach (SP)	oystershell beach-barrier island	2.9	591.0 (566.3)	203.8 (195.3)	6.5 (4.0)
Marsh Island (MI)	sand spit-estuarine island	0.6	235.8 (256.7)	428.8 (466.8)	4.2 (1.3)
Bull Island-northeast (BIN)	sandy beach-barrier island	1.5	630.6 (918.7)	434.9 (633.6)	5.1 (2.5)
Bull Island-middle (BIM)	sandy beach-barrier island	5.8	169.4 (140.6)	29.3 (24.3)	3.8 (2.7)
Bull Island-southwest (BIS)	sandy beach-barrier island	1.3	1071.7 (1688.7)	830.8 (1309.1)	7.7 (3.0)
Price Inlet sand bar (PIS)	ephemeral sand bar	0.9	2877.0 (1124.3)	3093.5 (1208.9)	8.0 (1.4)
Capers Island-northeast (CIN)	sandy beach-barrier island	1.3	912.7 (1152.4)	707.5 (893.4)	7.5 (1.6)
Capers Island-southwest (CIS)	sandy beach-barrier island	1.0	107.9 (197.8)	111.3 (204.0)	3.6 (3.0)
Deweese Island-northeast (DIN)	sandy beach-barrier island	2.3	3164.1 (4091.0)	1406.3 (1818.2)	8.5 (1.2)
Deweese Island-middle (DIM)	sandy beach-barrier island	1.6	530.75 (1568.5)	329.7 (974.2)	3.8 (3.0)
Deweese Island-southwest (DIS)	sandy beach-barrier island	1.1	307.0 (963.4)	271.7 (852.5)	2.9 (2.4)

Site (Site Code)	Site Description	Linear (km) Shoreline ^a	Mean (SD) Shorebird Abundance	Mean (SD) Shorebird Density	Mean (SD) Species Richness ^b
Inner Sites:					
Horsehead Creek (HC)	oyster bank	0.3	40.6 (46.4)	139.9 (160.0)	3.1 (1.7)
Deepwater Point (DP)	oyster bank	0.5	133.1 (113.3)	260.9 (222.3)	3.8 (1.9)
Casino Creek (CC)	oyster bank	0.1	1.5 (3.3)	30.0 (65.8)	0.4 (0.8)
Mathews Creek (MC)	oyster bank	1.1	1.3 (2.1)	1.2 (1.9)	0.6 (0.9)
Harbor River (HR)	oyster bank	1.6	35.1 (76.5)	22.2 (48.4)	1.3 (1.4)
White Banks-east (EW)	oyster bank-estuarine island	0.8	48.6 (93.9)	60.8 (117.4)	2.5 (1.9)
White Banks-middle (MW)	oyster bank-estuarine island	1.0	131.3 (104.2)	135.3 (107.4)	4.1 (1.7)
White Banks-west (WW)	oyster bank-estuarine island	0.3	29.3 (50.4)	91.5 (157.5)	2.0 (2.0)
Awendaw Creek (AW)	oyster bank	1.1	2.0 (3.2)	1.8 (2.9)	0.7 (1.0)
Graham Creek (GC)	docks	0.2	396.7 (442.3)	1888.9 (2106.3)	2.0 (1.9)
inbetween Graham/Venning creeks (GVF)	high elevation sand/mud flat	1.0	28.7 (88.0)	29.5 (90.7)	1.4 (2.6)
Venning Creek-flat (VCF)	high elevation sand/mud flat	0.3	75.3 (109.8)	289.7 (422.3)	2.7 (2.5)
Venning Creek-docks (VCD)	docks	0.6	346.7 (442.6)	619.0 (790.3)	2.0 (1.5)
Venning Creek-oyster bank (VCO)	oyster bank	0.5	246.0 (257.5)	546.7 (572.1)	4.5 (1.7)
Anderson Creek (AC)	oyster bank	0.7	902.2 (1413.5)	1366.9 (2141.7)	5.3 (2.5)
Moore's Landing (ML)	oyster bank	2.2	1029.3 (822.1)	476.5 (380.6)	6.8 (1.6)
southwest Bull's Bay (SW)	oyster bank	2.2	167.3 (231.5)	75.4 (104.3)	4.9 (3.5)
Price Inlet (PI)	oyster bank	5.9	1690.3 (1087.4)	288.5 (185.6)	7.9 (1.7)

TABLE 2. Continued.

Site (Site Code)	Site Description	Linear (km) Shoreline*	Mean (SD) Shorebird Abundance	Mean (SD) Shorebird Density	Mean (SD) Species Richness ^b
Inner Sites (Continued):					
Price Inlet flats (PIF)	high elevation sand/mud flat	1.1	269.1 (720.6)	238.1 (637.7)	2.3 (3.2)
Capers Inlet (CI)	oyster bank	4.0	574.8 (534.1)	143.3 (133.2)	6.5 (2.0)
Bulkyard Sound (BS)	oyster bank	3.0	489.7 (366.6)	163.8 (122.6)	4.4 (2.5)
Deweese Inlet (DI)	oyster bank	3.2	427.9 (543.9)	132.9 (168.9)	5.1 (2.3)

Shoreline with exposed substrate (i.e. marsh not included) measured at high tide with a handheld GPS unit (Garmin 58). For docks, we only included those without railings because shorebirds used almost exclusively open docks; docks measured with a measuring wheel.

Presence of small sandpipers (*Calidris mauri*, *minutilla*, and *pusilla*) treated as one species.

TABLE 3. Relative importance^a of the Cape Romain region, SC, based on maximum daily counts (from one of three routes) and maximum region counts (from all three routes combined) during spring (mid-March - May 1997 and 1998), fall (July - October 1997), and winter (January - 1st week of March 1998; November - December 1998)(n = 15 sets of censuses).

Species ^b	Maximum Daily Count						Maximum Region Count					
	Spring			Fall			Winter			Spring		
	Count	Route	Proportion ISS Total (%)	Count	Route	Proportion ISS Total (%)	Count	Route	Proportion ISS Total (%)	Count	Route	Proportion ISS Total (%)
American Oystercatcher	568	sw	53	1033	sw	35	1340	sw	65	1635	sw	46
Marbled Godwit	348	sw	20	315	sw	22	480	sw	20	315	sw	22
Short-billed Dowitcher	5013	se	17	6141	sw	9	5476	sw	30	6363	sw	9
Wilson's Plover	55	ne	9	121	se	11	7	ne	15	241	ne	20
Dunlin ^c	9245	se	12	6375	se	7	9202	se	18	13551	se	14
Willet	939	sw	14	568	sw	5	802	sw	15	691	sw	6
Whimbrel	307	ne	13	128	sw	5	4	sw	19	163	sw	6
Semipalmated Plover	1922	se	15	792	se	2	711	se	30	1475	se	4
Red Knot	3260	se	3	4210	ne	13	1518	se	3	4210	se	13
Western Sandpiper	NA			1326	se	2	2002	sw	NA	1340	sw	2
Black-bellied Plover	336	ne	2	417	sw	1	904	ne	4	1040	ne	2
Sanderling	1600	se	2	1127	se	1	474	ne	3	1861	ne	2

TABLE 3. Continued.

Species ^a	Maximum Daily Count				Maximum Region Count			
	Spring		Fall		Spring		Fall	
	Count	Route	Proportion ISS Total (%)	Count	Route	Proportion ISS Total (%)	Count	Route
Ruddy Turnstone	185	ne	<1	250	sw	2	245	sw
Piping Plover	13	ne	1	6	ne	<1	15	ne
Total Index (%)			161			115		
					Count	Proportion ISS Total (%)	Count	Proportion ISS Total (%)
					427	<1	351	3
					25	3	9	<1
						225		149

^a Relative importance index is calculated by dividing each species' peak count into the corresponding ISS seasonal total (plus the Cape Romain count); ISS seasonal totals presented in Harrington and Perry 1995.

^b Data presented only for species with peak counts exceeding 1% of spring or fall ISS totals.

^c November data used for fall because this species is a late fall migrant (Fig. 2).

NA Data not available because we did not identify most small sandpipers to species during our peak spring count (last week of March). For the maximum region count, we categorized 4,156 birds as small sandpipers, with an additional 168 identified as Western Sandpipers. Based on local abundance and migratory patterns of the three species of small sandpipers (S. Dodd, pers. observ.), most of the unidentified small sandpipers were Western Sandpipers.

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Incidental Cache Use by the Brown Thrasher, with Notes on Secondary Cache Use by Additional Avian Species

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Food hoarding is a widespread and complex behavior (Vander Wall 1990). Most research has focused on cache placement or food recovery by the hoarding animal, or on cache theft by conspecifics or by other food-hoarding species. Here, I document the way in which Brown Thrashers (*Toxostoma rufum*) used caches likely made by jays or squirrels. I also observed other avian species consuming partial remains of previously opened caches, indicating that more participants may be involved in cache utilization than addressed by recent research.

On 6 and 7 October 1990, in Athens, Clarke Co., Georgia, I recorded five instances in which a Brown Thrasher uncovered an acorn while searching the leaf litter beneath redbud shrubs (*Photinia serrulata* x *fraseri*). Observations occurred between 10:45 and 14:00. In each case, the bird opened the acorn using series of two to five rapid strikes, or individual "pile-driver" motions (Skinner 1928). Later observation of the cache area revealed that Blue Jays (*Cyanocitta cristata*) cached and opened acorns beneath the redbuds.

At 10:00 on 18 February 2000, in Belvedere, Aiken Co., SC, I observed a Brown Thrasher pile-driving a pecan in leaf litter beneath flowering dogwood (*Cornus florida*), Carolina laurel cherry (*Prunus caroliniana*), and redbud. The bird was flushed from the pecan before it was finished eating. Approximately 15 min later, a White-throated Sparrow (*Zonotrichia albicollis*) that was searching in the leaf litter found the opened pecan and fed from it. After another 10 min, I examined the remainder of the pecan. I found that most of the nut was removed and that strike marks were present on the husk where a bill likely had glanced off on impact. For several months prior to these

observations, I often observed eastern gray squirrels (*Scirurus carolinensis*) importing pecans from trees approximately 20 m away and then caching the pecans within the observation area.

At 07:50 on 20 February 2000, again at the Belvedere location, I observed a female Eastern Towhee (*Pipilo erythrophthalmus*) picking at an opened pecan in the leaf litter. Almost immediately, the towhee was chased away from the nut by a Blue Jay. The towhee and jay then supplanted each other several times. The opened pecan had strike marks similar to the one described above.

The Brown Thrasher behavior has three potential explanations: 1) thrashers cache and later uncache food items; 2) while foraging, thrashers incidentally uncover items that were cached by other animals; and 3) thrashers purposefully search areas where they are likely to find caches. Skinner (1928) noted that Brown Thrashers do carry acorns away from a parent oak tree, but his descriptions suggest that the birds open the nuts immediately after transport instead of caching them. Similarly, Vander Wall (1990) includes no references of cache storage, retrieval, or theft by any mimic thrush (Mimidae). Because other species (jays, squirrels) were observed caching items in the areas where thrashers were seen opening similar items, Brown Thrashers likely use caches uncovered during routine feeding searches. Moreover, while it is possible that thrashers purposefully forage in areas that are likely to hold cached items, all of my observations of uncaching events were of birds that were under trees that had deposited mast by the time the thrashers were seen foraging. Therefore, the incidental cache use hypothesis may adequately explain the behavior. Also, since my observations were made 10 years and > 190 km apart, incidental cache use by thrashers may be widespread both temporally and spatially.

The towhee, sparrow, and jay observations demonstrate that the animal that finds and opens the cache may not always be the only animal that consumes it. The jay may have supplanted the towhee to recover its own cache or a cache that the jay itself had pilfered. However, squirrels were seen caching pecans in nearby locations, and thrashers were the only avian species observed opening a pecan. Also, since the pecans (mean length = 3.68 cm; mean width = 2.06 cm, N = 20) may have been too large for the jays to carry (Darley-Hill and Johnson 1981), both birds were likely vying for a squirrel's cache that was previously pilfered by a Brown Thrasher. I am unaware of other references documenting this secondary use of opened caches.

Cache theory predicts that in response to cache loss, caching species should avoid previously pilfered cache sites (Hampton and Sherry 1992; Heinrich and Pepper 1998; but see Baker and Anderson 1995). Long distance transport of hoarded food may occur to avoid detection of cache sites by competitors (Heinrich and Pepper 1998). Although long distance transport of the food item may decrease theft by competitors at the host tree, if species such as Brown Thrashers frequently uncover caches, the benefit of long distance transport will be decreased. These observations indicate that many species may benefit from caches and that the complexity of cache biology may yet remain to be uncovered.

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Instructions for Authors

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BRIEFS FOR THE FILES

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All Dates Fall 2000

Briefs for the Files is a seasonal collection of uncommon-to-rare or unusual North and South Carolina bird sightings and events which do not necessarily require a more detailed Field Note or article. Reports of your sightings are due the 20th of the month after the end of the previous season.

*Winter = December 1 - February 28, due March 20
Spring = March 1 - May 31, due June 20
Summer = June 1 - July 31, due August 20
Fall = August 1 - November 30, due December 20*

Reports can be submitted in any format, but I prefer that you type them and list the sightings according to the birds in checklist order (not according to dates or locations). If you submit your report to me through e-mail, please type your report directly into the message or copy it from a word processing program directly into the message. You may also attach your file to the e-mail, but if you do, please let me know the program used and also send a second version saved as a text (.txt) file.

Suitable reports for the Briefs include any sightings you feel are unusual, rare, noteworthy, or just plain interesting to you in any way! It is my responsibility to decide which reports merit inclusion in the Briefs.

Please be sure to include details of any rare or hard-to-identify birds.

I rely in part on sightings reported in Carolinabirds. Please don't, however, rely on me to pick up your sightings from Carolinabirds. Instead, please also send your sightings directly to me as described above.

If I feel that your sighting warrants a Field Note, I will contact either you or the appropriate state Field Notes editor. You may, of course, submit your Field Note directly to the editor without going through me.

RED-THROATED LOON: The only inland Red-throated reported was one at Jordan Lake, NC, Nov. 20 (Ricky Davis).

COMMON LOON: Inland Commons included 21 on L. Rhodhiss, NC, Nov. 19 (Dwayne and Lori Martin), 21 on Jordan Lake, NC, Nov. 18 (Karen and Joe Bearden), and one on L. Osceola, NC, Oct. 7 (Ron Selvey). Early inland loons

included one at Jordan L. Oct. 8 (Ricky Davis) and one on L. Hickory, NC, Oct. 11 (Dwayne and Lori Martin).

EARED GREBE: The usual Goldsboro, NC, Wastewater Treatment Plant (W.T.P.) site hosted up to five during the fall, with the first one being noted as early as Aug. 12 (Eric Dean). Others reported included one at the Jacksonville, NC, W.T.P. Aug. 27 (Jim O'Donnell *et al.*) and three at the Savannah Spoil Site, Jasper County, SC, Sept. 6 - Oct. 25 (Steve Calver).

NORTHERN FULMAR: Only one was found this fall, off Hatteras, NC, Nov. 4 (Brian Patteson *et al.*).

BERMUDA PETREL: The year's sixth report of this species off North Carolina involved one out of Oregon Inlet Aug. 19 (Patteson *et al.*). It was truly an amazing year for this endangered species, it remains to be seen if this will happen during 2001.

HERALD PETREL: This species was once again found off North Carolina multiple times. Out of Oregon Inlet, two were found Aug. 19 and three were seen Aug. 21 (Patteson *et al.*). From Hatteras, one was found Aug. 27, and an amazing total of four was seen Aug. 26 (Patteson *et al.*).

CORY'S SHEARWATER: One was unusual, seen on the beach north of C. Hatteras, NC, Oct. 27 (Brian Patteson). Also a good count of 202 was off Hatteras, NC, Nov. 4 (Patteson, *et al.*).

GREATER SHEARWATER: The Hatteras, NC, pelagic on Nov. 4 produced a good count of 44 Greaters (Patteson, *et al.*).

MANX SHEARWATER: This species is normally considered very rare in our waters during summer and fall. This year has been different and several were seen this August. Out of Hatteras singles were found on the 5th and 27th; and from Oregon Inlet, one was found the 14th, and three were seen on the 20th (Patteson *et al.*).

WHITE-FACED STORM-PETREL: One of the most sought-after and memorable birds found on pelagic trips, a White-faced was found off Oregon Inlet Aug. 13 (Patteson *et al.*).

BAND-RUMPED STORM-PETREL: A new record one-day count was obtained Aug. 6 out of Hatteras, NC, when 234 were tallied (Patteson *et al.*).

MASKED BOOBY: One was offshore from Oregon Inlet, NC, Aug. 21 (Patteson *et al.*). Much more unusual were onshore sightings including one ranging from Hatteras Inlet all the way up to Oregon Inlet Sept. 19 until Sept. 25 (M. Wilkinson, Susan Campbell, Pat Moore *et al.*, Jeff Lewis) and possibly another from C. Hatteras Oct. 27 (Patteson).

AMERICAN WHITE PELICAN: Always noteworthy in the Carolinas, one was at Beaufort Inlet, NC, Sept. 8 (John Fussell), one was over Huntington Beach State Park, SC, Nov. 10 (*fide* Jack Peachey), and the Savannah Spoil Site, SC, had some all fall with a peak of 37 Nov. 15 (Steve Calver).

GREAT CORMORANT: One was very rare and unusual inland at Jordan Lake, NC, Oct. 30 (Steve Shultz).

AMERICAN BITTERN: Locally unusual were one at Hooper Lane, Henderson County, NC, Oct. 15 (Wayne Forsythe and Bob Olthoff) and two in the Croatan Nat. For., NC, Oct. 15 (Gene Howe and Judy Flint).

LEAST BITTERN: One was rare at the Little Creek Impoundment, Chapel Hill, NC, Oct. 1 (*fide* Will Cook). Also one was found in the road near the top of Mt. Mitchell, NC, during bad weather Oct. 7 (Michael Morales). The bird was picked up, kept overnight, and released at a lower elevation the next morning!

GREAT "WHITE" HERON: The Brevard, NC, bird present from the summer, was still present at the end of the period (Tom Joyce). Another one was found in the Carolinas this fall, that being an individual at Huntington Beach State Park, SC, Nov. 4, as noted by Steve Shultz. Two sightings in the Carolinas at once is definitely unusual.

SNOWY EGRET: Good inland reports of this species included one at Hendersonville, NC, Sept. 6-9 (Simon Thompson and Wayne Forsythe), two in Anderson County, SC, Sept. 10 (Sidney Gauthreaux, Jr.), one at Jordan Lake, NC, Sept. 16 (Ginger Travis and Lena Gallitano), and three at the Orangeburg, SC, sod farm Sept. 24 (Tim Kalbach).

REDDISH EGRET: Once again this species was found at several sites. The best counts included seven at the Savannah Spoil Site, SC, Sept. 20 (Steve Calver) and four at Portsmouth, NC, Aug. 3 (Wayne Irvin). Reports of single birds came from Folly Beach, SC, Sept. 21 (Chuck Hunter, *fide* Craig Watson), Sunset Beach, NC, Oct. 8 (Stephen Harris), and Huntington Beach State Park, SC, Oct. 3 (Jack Peachey and Bob Maxwell) until at least Nov. 22 (Kenneth Behrens).

CATTLE EGRET: One was locally unusual at L. Crabtree, Wake County, NC, Sept. 19 (Dan Kaplan).

GLOSSY IBIS: This species is quite rare inland, thus of note were seven at the Goldsboro, NC, W.T.P. Aug. 25 (Gene Howe), with three still present the following day (Eric Dean *et al.*).

ROSEATE SPOONBILL: The spoonbill present at Pea Island N.W.R., NC, during the summer, was last reported Aug. 27 (Jeff Lewis). Other sightings came from South Carolina where individuals were at Kiawah Island in early August (*fide* Taylor Piephoff) and at Charleston for about three weeks in September (Craig Watson).

WOOD STORK: Very rare and unusual that far inland, one was a surprise seen flying over the Neuse River in Goldsboro, NC, Aug. 28 (Eric Dean). The usual Sunset Beach, NC, summering flock peaked out at about 80 birds (*fide* Mary McDavit).

FULVOUS WHISTLING-DUCK: This species staged an impressive influx into the Carolinas this fall. Three were at L. Mattamuskeet N.W.R., NC, Oct. 27 (*fide* Taylor Piephoff); an impressive flock of up to 26 at North Pond, Pea Island N.W.R., NC, thrilled many observers Oct. 28 - Nov. 21 (Jeff Lewis, Keith Watson, Barbara Gearhart, m. obs.); seven were seen sporadically at

Magnolia Gardens, SC, during late November (*fide* Perry Nugent, sev. obs.); and one was at Savannah N.W.R., SC, Nov. 24 (Mike Turner).

ROSS'S GOOSE: The only Ross's Geese found in the Carolinas included a group of up to five at Pea Island N.W.R., NC, Oct. 28 - Nov. 12 (Jeff Lewis, Keith Watson, John & Paula Wright, m. obs.).

BRANT: Quite unusual were the several seen in North and South Ponds, Pea Island N.W.R., NC, Nov. 4-5 (m. obs.). This species normally favors the ocean and sound waters in our area.

EURASIAN WIGEON: The only one found away from the usual Pea Island, NC, area was at L. Mattamuskeet, NC, Nov. 2 (Ricky Davis).

LONG-TAILED DUCK: One was found at Roanoke Rapids Lake, NC, Nov. 12 (Ricky Davis), providing the only inland report this fall.

BLACK SCOTERS: One Black Scoter was at the Townville Access, L. Hartwell, SC, Nov. 24 (Steve Patterson *et al.*).

SURF SCOTER: Inland Surfs included one at the Townville Access, L. Hartwell, SC, Nov. 24 (Steve Patterson *et al.*) and two at Dreher Island State Park, L. Murray, SC, Nov. 24 (Irwin Pitts). Also a flightless Surf Scoter was seen at Little River Inlet, SC, Aug. 6 for a most unusual August sighting (Merrill Lynch).

OSPREY: One was quite late for an inland location in Forsyth County, NC, Nov. 10 (Royce Hough).

MISSISSIPPI KITE: Rare mountain reports included singles at Caesar's Head, SC, Sept. 10 and 27 (Reece & Judy Mitchell, *fide* Jeff Catlin).

NORTHERN GOSHAWK: Most amazing were three different reports of this very rare accipiter. One was over Whiteside Mt., Jackson County, NC, Sept. 16 (Haven Wiley), one was at Simpsonville, SC, Sept. 20 (Pete Worthington), and one was at Mt. Pisgah, NC, Oct. 22 (Roy Sharpton, *fide* Bill Sanderson). All three were adults seen well and the South Carolina sighting is one of only a handful of reports, with the species still considered hypothetical in that state.

GOLDEN EAGLE: Always noteworthy, the exciting Golden Eagle provided several reports this fall. One was seen at the Mt. Pisgah, NC, hawk watch Oct. 27 (Roy Sharpton, *fide* Bill Sanderson), an immature was at Open Grounds, Carteret County, NC, Nov. 3 (Jack Fennell, *fide* John Fussell), an adult was at L. Mattamuskeet, NC, Nov. 25 (Rich Boyd and Susan Arrington), and an immature was at Doughton Park, Alleghany County, NC, Nov. 29 (Dan Hayes and Joe Mickey).

YELLOW RAIL: The only report was of one seen in a ditch near New Holland, Hyde County, NC, Nov. 7 (Kelly Davis).

COMMON MOORHEN: One was unusual at North Pond, Pea Island N.W.R., NC, Nov. 4 (Will Cook *et al.*, Linda Ward).

AMERICAN COOT: Nine seen offshore out of Hatteras, NC, Nov. 4 (Patteson *et al.*), were unusual and provided a very good count for a pelagic trip!

SANDHILL CRANE: Rare were eight at Savannah N.W.R., SC, Nov. 24 (Mike Turner) and one at N. Myrtle Beach, SC, during much of the fall (Rick

Murray, Jack Peachey). Also rare and unusual were three over Mt. Pisgah, NC, Oct. 7 (*vide* Bill Sanderson) and two near Weaverville, Buncombe County, NC, Nov. 22 (Tim Lewis). Mountain area reports in fall are almost assuredly migrants a little farther east of the normal migration route in Georgia.

BLACK-BELLIED PLOVER: The best inland reports included 17 at Hooper Lane, NC, Aug. 31 (Wayne Forsythe and Bob Olthoff), one in Transylvania County, NC, Sept. 3 (Bill & Norma Siebenheller), two at Jordan Lake, NC, Oct. 29 (Ricky Davis), two at the Goldsboro, NC, W.T.P. Oct. 22 (Davis), and one at the Orangeburg, SC, sod farm Sept. 24 (Tim Kalbach).

AMERICAN GOLDEN-PLOVER: Once again, many reports of this plover were received from the Carolinas. The best sightings included seven at the Winslow Sod farm, Scotland Neck, NC, Sept 4 (Frank Enders, Ricky Davis), six at Hooper Lane, NC, Sept. 7 (Vin Stanton), up to three at the Orangeburg, SC, sod farm Aug. 20 - Sept. 24 (Mike Bernard, Dennis Forsythe, Tim Kalbach, Lex Glover, Bob Wood, sev. obs.), two at C. Hatteras, NC, Aug. 19 (Gordon Brown), two at the Cherry Hospital, Wayne County, NC, Sept. 4 (Eric Dean), one at Sandhill Turf, Candor, NC, Aug. 21 (Dick Burk), and one at Huntington Beach State Park, SC, Oct. 14 (Judy Walker *et al.*).

BLACK-NECKED STILT: This species is one of the rarest inland shorebirds, thus two at the Goldsboro, NC, W.T.P. Aug. 11 (Mark Simpson and Sam Moore) were very good finds. Also three at the Savannah Spoil Site, SC, Oct. 3 were late (Steve Calver). Stilts are normally gone from the Carolinas by late September.

AMERICAN AVOCET: Very rare inland reports included three at the Goldsboro, NC, W.T.P. Aug. 10-12 (Eric Dean, Gene Howe, Mark Simpson, Sam Moore) and another there Sept. 8 (Howe); an impressive flock of 11 at L. Auman, Moore County, NC, Oct. 23 (Dick & Lois Dole); and one at the Jacksonville, NC, W.T.P. Nov. 11 (Jim O'Donnell *et al.*). Impressive coastal counts included 564 at the Savannah Spoil Site, SC, Oct. 3 (Steve Calver) and 315 at Pea Island N.W.R., NC, Aug. 12 (Jeff Lewis). Also rare and late were six at Huntington Beach State Park, SC, Nov. 22 (Kenneth Behrens).

UPLAND SANDPIPER: Numbers of Uplands were down somewhat when compared to previous falls. The best totals reported were the 12 at the Orangeburg, SC, sod farm Aug. 26 (Tim Kalbach) and the 12 at the Bucksport Sod, Horry County, SC, Aug. 26 (Jack Peachey and Gary Phillips). Others included singles at Hooper Lane, NC, Aug. 3 (Wayne Forsythe and Bob Olthoff), Winslow Sod, Scotland Neck, NC, Aug. 5-13 (Elisa, Mary & Frank Enders, Ricky Davis), Savannah Spoil Site, SC, Aug. 18 (Steve Calver), and at C. Hatteras, NC, Sept. 2 (Pat Moore).

LONG BILLED CURLEW: Only one was reported this fall, that being at Ft. Fisher, NC, Aug. 1 (Gene Howe and Judy Flint).

HUDSONIAN GODWIT: Very rare in South Carolina, a flock of seven was found at Mary's Pond, Bear Island W.M.A. Sept. 9 (Bob & Barbara Maxwell, Robin Carter and Caroline Eastman, sev. obs.). Four were still present as late

as Sept. 23 (Lex Glover *et al.*). There are only a handful of good records for that state.

RUDDY TURNSTONE: One was a locally good find at Parksville, Clark Hill Lake, SC, Sept. 5-6 (Steve Wagner, Lex Glover).

SANDERLING: Inland reports included seven at Falls Lake, NC, Sept. 26 (Mark Johns), three at Hooper Lane, NC, Aug. 2-4 (Wayne Forsythe and Simon Thompson), and from one to three at the Goldsboro, NC, W.T.P. Sept. 9-16 (Eric Dean, Gene Howe).

WHITE-RUMPED SANDPIPER: Inland White-rumped Sandpiper reports were of eight at the Goldsboro, NC, W.T.P. Sept. 9 (Eric Dean and Gene Howe), one at Parksville, SC, Sept. 5-6 (Steve Wagner, Lex Glover), and one at Winslow Sod, Scotland Neck, NC, Sept. 3-4 (Ricky Davis, Frank Enders).

BAIRD'S SANDPIPER: The always noteworthy Baird's was found several times this fall. One was at the Orangeburg, SC, sod farm Aug. 20 (Mike Bernard), one was at Hooper Lane, NC, Aug. 28 (Wayne Forsythe and Bob Olthoff), and one was at L. Crabtree, Wake County, NC, Sept. 19 (Doug Shadwick, Dan Kaplan).

PECTORAL SANDPIPER: Late Pectorals included one at Pea Island N.W.R., NC, Nov. 4 (Ricky Davis) and one at the Savannah Spoil Site, SC, Nov. 15 (Steve Calver).

STILT SANDPIPER: Noteworthy inland Stilt Sandpipers involved one at the Bucksport, SC, sod farm Sept. 4 (Jack Peachey and Gary Phillips), two at the Winston-Salem, NC, W.T.P. Sept. 9 (Ramona Snaveley *et al.*), and one at L. Crabtree, Wake County, NC, Sept. 19 (Doug Shadwick). The peak count noted this fall at the Savannah Spoil Site, SC, was 482 on Sept. 20, as noted by Steve Calver. Also up to three were considered late at Pea Island N.W.R., NC, Nov. 4 (Kent Fiala *et al.*, sev. obs.), with one still present Nov. 7 (Jeff Lewis).

BUFF-BREASTED SANDPIPER: The number of reports of this species continues to increase every fall. There were at least eight reports received with the best totals being 10 at Hooper Lane, NC, Aug. 28 (Wayne Forsythe and Bob Olthoff), 10 at the Orangeburg, SC, sod farm Sept. 24 (Tim Kalbach), and five in Henderson County, NC, Sept. 16 (*fide* Marilyn Westphal). Others of note included one at Calvert, Transylvania County, NC, Sept. 21 (Betty McIlwain, sev. obs.), one at the Bucksport, SC, sod farm Sept. 3 (*fide* Jack Peachey), one at Ft. Fisher, NC, Sept. 4 - 9 (Clyde Sorensen, Josh Rose), and C. Hatteras, NC, Sept. 3-4 (Pat Moore *et al.*, Marcia Lyons).

RUFF: Always noteworthy anywhere in the Carolinas, one was at the Savannah Spoil Site, SC, Oct. 3 (Steve Calver).

WILSON'S PHALAROPE: Only two reports were received this fall with one rare inland at the Goldsboro, NC, W.T.P. Sept. 4 (Gene Howe, Eric Dean) and one at Bear Island W.M.A., SC, Sept. 10 (Mike Bernard).

RED-NECKED PHALAROPE: One was rare inland at the Goldsboro, NC, W.T.P. Sept. 9, as noted by Eric Dean and Gene Howe. Also an excellent offshore count of 211 was had off of Oregon Inlet, NC, Sept. 2 (Patteson *et al.*).

RED PHALAROPE: One found at Brevard, Transylvania County, NC, Nov. 10 (Frank McConnell, Linda Candler, Betty McIlwain, Wayne Forsythe, sev. obs.) provided a very rare inland report, especially for the mountains.

POMARINE JAEGER: A good count of 26 was had off Oregon Inlet, NC, Aug. 20 (Patteson *et al.*).

PARASITIC JAEGER: Onshore sightings included one at C. Hatteras, NC, Sept. 6 (Brian Patteson), one at Hatteras Inlet, NC, Sept. 30 (M. Wilkinson), and two from Coquina Beach, Bodie Island, NC, Nov. 3 (Jeff Pippen).

LONG-TAILED JAEGER: The only reports included two off Hatteras, NC, Aug. 6 and three off Oregon Inlet, NC, Sept. 4 (Patteson *et al.*).

SOUTH POLAR SKUA: This fall's skua sightings, all off North Carolina as usual, involved from one to two off Hatteras and Oregon Inlet during the period of Aug. 6 to Sept. 2 (Patteson *et al.*).

LAUGHING GULL: Inland Laughing Gull reports involved one at the Goldsboro, NC, W.T.P. Aug. 26 (Eric Dean *et al.*) and five at Jordan Lake, NC, Oct. 8 (Ricky Davis).

FRANKLIN'S GULL: Very rare in the Carolinas, two Franklin's at L. Auman, Moore County, NC, Nov. 4 (Dick Dole) were good finds.

BLACK-LEGGED KITTIWAKE: One was very early and unusual at Folly Beach, SC, Sept. 23, as noted by Robin Carter and Caroline Eastman. Much less unusual were the five found on the Nov. 4 Hatteras, NC, pelagic trip (Patteson *et al.*).

ROSEATE TERN: Reports of this annual but rare species are always worth mentioning. One at C. Hatteras, NC, Aug. 6 - 19 (Ferenc Domoki, Gordon Brown) was a good find, but the flock of seven there Sept. 6 (Brian Patteson) was most impressive.

INLAND TERNS: Few inland terns were noted this fall. Some of the reports included two Caspians at L. Julian, NC, Sept. 7 (Vin Stanton), six Commons at Jordan Lake, NC, Oct. 8 (Ricky Davis), two Commons at Falls Lake, NC, Sept. 24 (Josh Rose and Frank Rheindt), four Forster's at Jordan Lake Oct. 8 (Davis), and four Blacks at the Goldsboro, NC, W.T.P. Aug. 30 (Gene Howe).

BRIDLED TERN: The best offshore pelagic total reported was the 24 off of Oregon Inlet, NC, Sept. 2 (Patteson *et al.*).

SOOTY TERN: The best offshore totals were off of Oregon Inlet, NC, with 45 on Aug. 19 and 48 on Sept. 2 (Patteson *et al.*). Much more interesting was the Sooty seen at the shore at Beaufort Inlet, NC, Aug. 17 (John Fussell), the only land-based sighting this fall.

EURASIAN COLLARED-DOVE: New locations for this species included Goldsboro, NC, where a group of up to 20 were seen in the downtown area (Mark Simpson, Sam Moore, Eric Dean, sev. obs.) and near Townville, SC, where one was seen Sept. 13 - Oct. 16 (Jim Edwards, Pete Worthington). The sites at Beaufort, NC, and Conover, NC, continued to host birds. Also singles were found at C. Hatteras, NC, Aug. 5 - 20 (Ferenc Domoki, Pat Moore *et al.*) and at Hickory, NC, Oct. 6 (Dwayne & Lori Martin).

WHITE-WINGED DOVE: Continuing the trend started several years ago, this species seems to be found more and more. Two were at a Manteo, NC, feeder Nov. 3-9 (Jeff Lewis), two were at a Buxton, NC, feeder Nov. 12 (*fide* Lewis), one continued at the Beaufort, NC, site (sev. obs.), one was at a Sunset Beach, NC, feeder Nov. 10-16 (*fide* Mary McDavit), two were on Sullivan's Island, SC, Nov. 18 until the end of the period (Will Post), and two were on Edisto Island, SC, Nov. 23-25 (Sidney Gauthreaux, Jr.).

COMMON GROUND-DOVE: Two at Church Island, Currituck County, NC, Nov. 6 (Harriet Whitsett) were very rare and unexpected for that northern coastal locality. This sighting is all the more amazing since the species has been practically absent from the state for several years now.

BLACK-BILLED CUCKOO: There were only four reports received, about normal for the fall season. Single birds were found at Riverdale, Craven County, NC, Aug. 20 (John Fussell), Ocean Isle Beach, NC, Sept. 17 (Taylor Piephoff), Hemlock Bluffs, Cary, NC, Oct. 7 (Mark Johns), and Oconee County, SC, Oct. 15 (Pete Worthington).

YELLOW-BILLED CUCKOO: One was late near Beaufort, SC, Nov. 4, as noted by Merrill Lynch.

NORTHERN SAW-WHET OWL: Only a few were netted this migration season. Hilton banded one at York, SC, Nov. 30 and Enders netted singles Oct. 31 and Nov. 1 at Halifax, NC. None were found elsewhere indicating a poor flight.

CALLIOPE HUMMINGBIRD: One was at a feeder in Deerlake Village, Transylvania County, NC, Oct. 26 - Nov. 21 (Bill & Martha Lovejoy, Bill & Norma Siebenheller). There are only a couple of Calliopes reported for North Carolina, and this is the first mountain sighting.

OLIVE-SIDED FLYCATCHER: The always noteworthy Olive-sided was found several times with one near Falls Lake, NC, Aug. 20 (Ricky Davis), one at the Bodie Island, NC, Lighthouse Aug. 27 (*fide* Jeff Lewis), and one at Jackson Park, Hendersonville, NC, Sept. 3 (Wayne Forsythe and Bob Olthoff).

YELLOW-BELLIED FLYCATCHER: This species was detected only a handful of times this fall. One was banded at James Island, SC, Sept. 13 (Will Post), one was at Hickory, NC, Sept. 23 (Dwayne & Lori Martin), and one was at Ravenel, SC, Sept. 27 (Perry Nugent *et al.*).

WILLOW FLYCATCHER: Rarely identified in the fall, one was at Leland, NC, Sept. 9, as noted by Greg Massey.

LEAST FLYCATCHER: One was netted at Sneads Ferry, NC, Aug. 27 (Paul Sykes), providing a locally rare report. Other Leasts included one at Buxton, NC, Sept. 26 (Marcia Lyons), one at Leland, NC, Sept. 9 (Greg Massey), one at Ft. Fisher, NC, Sept. 17 (Massey), and two at Southport, NC, Oct. 8 (Massey).

VERMILION FLYCATCHER: North Carolina's third Vermilion was an immature male at the Cherry Hospital, Wayne County, from Nov. 20 - Dec. 2 (Mark Simpson and Sam Moore, m. obs.). The bird was not found after a snow storm, one wonders if it moved on or did not make it.

WESTERN KINGBIRD: Four reports of this species were about normal. Single birds were found at Ft. Jackson, Richland County, SC, Sept. 13 (Lex Glover), at Cedar Island N.W.R., NC, Oct. 7 (Edith Tatum *et al.*), at Buxton, NC, Oct. 15 (Marcia Lyons and Jon Altman), and at Conway, SC, Nov. 11-12 (Steve & Barbara Thomas, Jack Peachey, Gary Phillips).

GRAY KINGBIRD: The only one reported this fall was on James Island, SC, Oct. 28 (Dennis & Donna Forsythe).

SCISSOR-TAILED FLYCATCHER: The nesting Scissor-taileds from the summer near Monroe, NC, were last seen Aug. 11 (Anne Olsen). No others were reported for the fall.

WARBLING VIREO: Fall Warblers, always noteworthy, included singles at Laurinburg, NC, Sept. 15 (Barbara Gearhart), at Hickory, NC, Sept. 19 (Dwayne & Lori Martin), at Roanoke Island, NC, Sept. 28 (Jeff Lewis), and at Simpsonville, SC, Sept. 28 (Pete Worthington). One at the Savannah Spoil Site, SC, Oct. 25 (Steve Calver) was locally very rare and quite late.

PHILADELPHIA VIREO: Once again, too numerous to mention all reports, the best one-day totals were of three on Roanoke Island, NC, Sept. 20 (Jeff Lewis) and three at Jackson Park, NC, Sept. 27 (Wayne Forsythe and Ron Selvey). One was rather early in Durham County, NC, Aug. 26, as noted by Tom and Janet Krakauer.

COMMON RAVEN: One over Hendersonville, NC, Aug. 10 (Ron Selvey) was considered to be locally unusual.

NORTHERN ROUGH-WINGED SWALLOW: An excellent count of 570 was had at the Silver Bluff Sanctuary, Jackson, SC, Sept. 25 (Paul Koehler, *fide* Anne Waters). Congregations of this species rarely reach this size.

BARN SWALLOW: Eight were slightly late in the Pea Island N.W.R., NC, area Nov. 4-5 (sev. obs., Wings Over Water).

RED-BREASTED NUTHATCH: Two at Simpsonville, SC, Sept. 10 (Pete Worthington) were the earliest reported, but a decent flight of the species did not materialize this fall.

GRAY CATBIRD: One at Jackson Park, Hendersonville, NC, Nov. 15 (Ron Selvey) was quite late, especially that far inland.

“BREWSTER’S” WARBLER: This hybrid was found twice, with singles at Winston-Salem, NC, Aug. 16 (Ferenc Domoki, sev. obs.) and in Duke Forest, Durham, NC, Sept. 24 (Jeff Pippen).

“LAWRENCE’S” WARBLER: The much rarer of the two hybrid forms, a male Lawrence’s was found at L. Crabtree, Wake County, NC, Sept. 30 (Joseph Covington).

GOLDEN-WINGED WARBLER: Noteworthy away from the mountains, migrants were found at Pea Island N.W.R., NC, Aug. 26 (Jeff Lewis), at Pee Dee N.W.R., NC, Sept. 24 (Barbara Gearhart), and at Raleigh, NC, Sept. 27 (Dan Kaplan).

NASHVILLE WARBLER: This species was reported more than normal this fall. The best reports included two at Roanoke Island, NC, Sept. 16 and two at Pea Island N.W.R., NC, Oct. 14 (Jeff Lewis), two in the Jordan Lake, NC, area Oct. 8 (*fide* Will Cook), singles at the Savannah Spoil Site, SC, Oct. 11 & 25 (Steve Calver), and one late at Jackson Park, NC, Nov. 6 (Ron Selvey).

BLACK-THROATED BLUE WARBLER: One was late at Winston-Salem, NC, Nov. 1-4 (Ramona Snaveley).

BLACK-THROATED GRAY WARBLER: A male was seen briefly but well on Roanoke Island, NC, Oct. 7 (Kent Fiala), providing about the fourth report for that state.

YELLOW-THROATED WARBLER: One was locally unusual on Roanoke Island, NC, Oct. 13, as noted by Jeff Lewis.

CERULEAN WARBLER: One at Hemlock Bluffs, Cary, NC, Sept. 30 was considered to be locally rare and slightly late (Mark Johns).

PROTHONOTARY WARBLER: One at Jackson Park, Hendersonville, NC, Sept. 14 (Wayne Forsythe and Bob Olthoff) was a good find for that location.

WORM-EATING WARBLER: Rather late migrants included one at L. Crabtree, Wake County, NC, Oct. 8 (Steve Shultz) and 1-2 at Greenville, NC, Oct. 17 (John Daughtry).

CONNECTICUT WARBLER: Reports of this warbler were down with only three being received. One was at Hickory, NC, Sept. 19 (Dwayne & Lori Martin), one was in Duke Forest, Durham, NC, Sept. 25 (Randy Emmitt), and another was in Durham, NC, Oct. 19 (Bruce Young).

MOURNING WARBLER: This very rare migrant was also found three times with singles at Carver’s Gap, Roan Mt., NC, Sept. 8 (Rick Knight), at Jackson Park, Hendersonville, NC, Sept. 10-13 (Wayne Forsythe, Ludwig Kempe, Ron Selvey), and at Weymouth Woods, Southern Pines, NC, Sept. 23 (Scott Hartley).

WILSON’S WARBLER: This species staged one of its better fall migrations in the Carolinas this year. The best count was three in one area on Roanoke Island, NC, Sept. 16-17 (Jeff Lewis). Other noteworthy sightings included one in Laurinburg, NC, Oct. 3 (Barbara Gearhart), one at Roanoke Island, NC, Nov. 8-9 (Lewis), and one at Savannah N.W.R., SC, Nov. 8 (Dot Bambach *et al.*) until at least Nov. 24 (Tom Egan and Lex Glover).

SUMMER TANAGER: One at Carver's Gap, Roan Mt., NC, Sept. 10 (Rick Knight) was considered unusual at that high elevation.

BLUE GROSBEEK: One was quite late at Huntington Beach State Park, SC, Nov. 11-22, as noted by Kenneth Behrens.

PAINTED BUNTING: One was locally unusual as a migrant at Pea Island N.W.R., NC, Oct. 20 (Jeff Lewis).

DICKCISSEL: Always noteworthy, Dickcissel reports included singles at Roanoke Island, NC, Sept. 25, Oct. 6 & 12 (Jeff Lewis), Pea Island N.W.R., NC, Oct. 19 (Lewis) and Nov. 3 (Ricky Davis), Wilmington, NC, Aug. 23 (Sam Cooper), Huntington Beach State Park, SC, Oct. 17 (Jack Peachey and Charlie Hancock), and two (netted) at James Island, SC, Oct. 8 (Will Post). Also one frequented a feeder in Brevard, NC, Nov. 21 until the end of the period (Betty McIlwain, sev. obs.), providing a rare mountain fall occurrence.

CLAY-COLORED SPARROW: This species was well-reported this fall. One of the most interesting sightings involved an adult at Winston-Salem, NC, Aug. 26 (Ferenc Domoki). Was this a very early migrant or what? In the mountains, where much rarer than along the coast, one was at Hooper Lane, NC, Oct. 13-16 (Wayne Forsythe and Bob Olthoff). All others found were coastal with the best totals being two at Ft. Fisher, NC, Sept. 26 (*vide* Taylor Piephoff), two at Pea Island N.W.R., NC, Oct. 3 (Jeff Lewis), and two at C. Lookout, NC, Oct. 10 (John Fussell, Wayne Irvin, Jim O'Donnell, Ron Johnson). The only one for South Carolina was at the Savannah Spoil Site Oct. 3, as noted by Steve Calver.

LARK SPARROW: Two were good finds at the Savannah Spoil Site, SC, Sept. 20 (Steve Calver). Singles were found at C. Lookout, NC, Sept. 16 (John Fussell *et al.*), at Pea Island N.W.R., NC, Oct. 3 (Jeff Lewis), and inland in Saluda County, SC, Oct. 14 (Steve Patterson).

GRASSHOPPER SPARROW: Locally unusual migrants included one at Hooper Lane, NC, Oct. 16 (Wayne Forsythe and Ron Selvey) and one at Pea Island N.W.R., NC, Oct. 28 (Jeff Lewis and Lee Yoder).

LeCONTE'S SPARROW: The best report of this increasingly found sparrow was the 10 at the Savannah Spoil Site, SC, Nov. 15 (Steve Calver). Also of note were three at Santee N.W.R., SC, Nov. 5 (Tim Kalbach), one at Ft. Fisher, NC, Oct. 29 (Barbara Gearhart), one near Oriental, Pamlico County, NC, Nov. 13-14 (Jim Ward), one at Pee Dee N.W.R., NC, Nov. 15 (Barbara Gearhart and Wayne Irvin), and one in eastern Richland County, SC, Nov. 26 (Kalbach).

LINCOLN'S SPARROW: This species was also reported more than usual. The best counts were an amazing six at Hooper Lane, NC, Oct. 16 (Wayne Forsythe and Bob Olthoff) and three at Valle Crucis, Watauga County, NC, mid. Oct. (Curtis Smalling). Other reports included one at Hospital Fields, Transylvania County, NC, Oct. 30 (Tom Joyce), one at Pee Dee N.W.R., NC, Oct. 17 & 26 (Barbara Gearhart), one in Onslow County, NC, Nov. 11

(Jim O'Donnell), one in Townville, SC, Oct. 15 (Sidney Gauthreaux, Jr.), and one at Savannah N.W.R., SC, Oct. 19 (Mary McDavit).

SWAMP SPARROW: One was rather early at Jordan Lake, NC, Sept. 16 (*fide* Will Cook).

LAPLAND LONGSPUR: Reports of this species were down somewhat this fall. The best count was of three at Jordan Lake, NC, Oct. 29 (Ricky Davis). Others included singles at Pea Island N.W.R., NC, Nov. 3 (Davis), C. Hatteras Nov. 4 (Eric Dean), and in Edgecombe County, NC, Nov. 19 (Davis).

SNOW BUNTING: Locally rare in the mountains were two at Mt. Mitchell State Park, NC, Oct. 30 - Nov. 5 (*fide* Michael Morales and Wayne Forsythe) and one on Black Balsam Knob, Haywood County, NC, Nov. 4 (*fide* Rick Knight). Another inland sighting involved one at Jordan Lake, NC, Oct. 29, as noted by Ricky Davis. Coastal reports included one at Pea Island N.W.R., NC, Nov. 4 (Davis) and one at C. Hatteras, NC, Nov. 8 (Jon Altman).

BOBOLINK: One was rather late at Santee N.W.R., SC, Nov. 5 (Tim Kalbach).

YELLOW-HEADED BLACKBIRD: There were three reports of this annual fall visitor, with one at Piney Creek, Alleghany County, NC, Aug. 4 (James Coman), one at Savannah N.W.R., SC, Nov. 1 (Steve & Priscilla Summers), and one in Edgecombe County, NC, Nov. 19 (Ricky Davis).

BALTIMORE ORIOLE: A flock of 40+ at Jackson Park, Hendersonville, NC, Sept. 6 was impressive, suggesting a good migration in that area (Wayne Forsythe, Bob Olthoff, Ron Selvey).

PURPLE FINCH: A male was very early at Simpsonville, SC, Sept. 10 (Pete Worthington). Does this mean there will be a good flight this winter?

RED CROSSBILL: A count of 30 was had near Bass Lake, Moses Cone Park, Blue Ridge Parkway, NC, Oct. 22 (Dwayne & Lori Martin).

PINE SISKIN: One at Huntington Beach State Park, SC, Nov. 22 (Kenneth Behrens) was a good find considering that this is not a good flight year.

EVENING GROSBEAK: Two at Winston-Salem, NC, Nov. 3-4 (*fide* Ramona Snaveley) were a complete surprise, especially since the species has been practically absent this fall.

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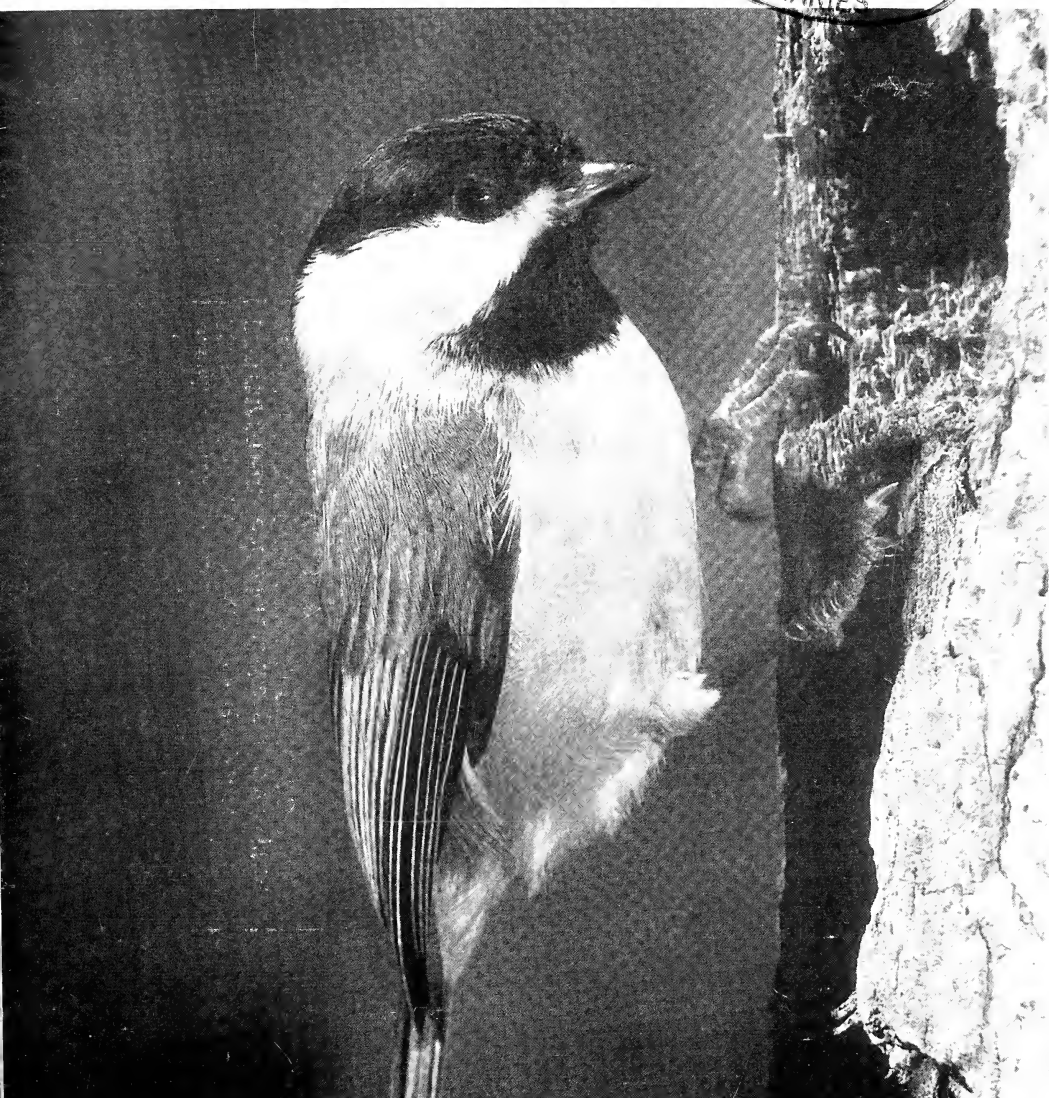
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The Chat

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General Field Notes

	North Carolina	South Carolina
	Will Cook	Dennis M. Forsythe
Briefs for the Files		Ricky Davis
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Articles

1999-2000 Report of the North Carolina Bird Records Committee. *Harry E. LeGrand, Jr., Chairman* 83

Capture Rate of American Kestrel During Non-breeding Season Influenced by Sex of Bird in Upstate South Carolina. *Samuel H. deMent and Reed S. deMent* 90

Fall 2000 North American Migration Count in South Carolina. *Donna Slyce Bailey* .. 94

General Field Notes

First Record of MacGillivray's Warbler for North Carolina. *Kelly Davis and John Fussell* 108

Briefs for the Files, Winter 2000-01 113

Cover (Carolina Chickadee) by Bill Duyck, Asheville, NC

1999-2000 Report of the North Carolina Bird Records Committee

Harry E. LeGrand, Jr.
Chairman
Susan Campbell
Samuel Cooper
Richard J. Davis

Eric V. Dean
Roger D. McNeill
Simon R. B. Thompson

This report enumerates the decisions of the Carolina Bird Club's North Carolina Bird Records Committee during 1999 and 2000. The Records Committee conducted no review of reports in 1998; thus, this is the first report of the Committee since a 1997 summary (North Carolina Bird Records Committee 1998). Committee voting information is referenced in parentheses (*i.e.*, year report received, reference number).

ACCEPTED AS VALID

The reported identification is judged to be accurate, and the bird is judged to be of wild origin. Photographs and/or written descriptions of all accepted records have been deposited in the N.C. Museum of Natural Sciences.

Bermuda Petrel (*Pterodroma cahow*) (00-06). One was observed in the Gulf Stream off Oregon Inlet on 2 June 2000 by a large group of birders. The Committee accepted a description provided by Joseph Morlan. Despite a number of recent reports, the Committee has voted on just two previous reports, accepting one with photos in 1996 and considering the other as Unresolved (North Carolina Bird Records Committee 1997). The species is already on the Official List, and this becomes the second accepted record.

Bermuda Petrel (00-18). One was seen by Brian Patteson and other birders on a pelagic trip to the Gulf Stream off Hatteras on 14 August 1999. The Committee accepted a description of the bird written by Steven Mlodinow. The species is already on the Official List, and this becomes the third accepted record.

Bulwer's Petrel (*Bulweria bulwerii*) (00-03). One was photographed in the Gulf Stream southeast of Oregon Inlet on 8 August 1998 by Mary Gustafson. The Committee accepted the photos and the written description presented in LeGrand *et al.* (1999). This is the second accepted record for the state; the first was a sight record only. Because of the acceptance of photos, the species is elevated from the Provisional List to the Official List.

Swinhoe's Storm-Petrel (*Oceanodroma monorhis*) (99-03). One was seen and photographed on a pelagic trip out of Hatteras on 8 August 1998 by Michael O'Brien, Brian Patteson, and many other birders. The Committee accepted the description and photographs presented in O'Brien *et al.* (1999). This is not only the first record for the state but also for North America (American Birding Association Checklist Committee 2000). The species is hereby added to the state's Official List.

Purple Gallinule (*Porphyryla martinica*) (99-06). One was seen by Simon Thompson and other observers in Henderson County on 14 May 1999. The Committee accepted written material and a sketch provided by Thompson. The species is already on the Official List, but this is the first record accepted for the mountain province.

Purple Gallinule (00-12). An immature found by Charles Gambill was seen by many other observers at Bodie Island on 29 December 1998. The Committee accepted details written by Harry LeGrand. This is the first winter record accepted by the Committee; the species is already on the Official List.

Limpkin (*Aramus guarauna*) (99-02). One was seen and photographed by many birders near New Bern in June 1998. The Committee accepted a written description provided by Dick Shelley and Bob Holmes and a photograph by Ricky Davis. The record has since been published (Shelley and Holmes 1999). This is the third accepted record for the state. As the other two were sight records, this third record, plus the photo, elevate the species from the Provisional List to the Official List.

Black-tailed Godwit (*Limosa limosa*) (00-07). One bird was observed in flight by Eric Dean near Goldsboro on 23 September 1999. This is the third accepted record for the state, with the others being from the Outer Banks. As one of the two previous birds was photographed, the species is already on the Official List. This is the first inland record.

Franklin's Gull (*Larus pipixcan*) (99-05). One adult was seen in a field with Ring-billed Gulls (*L. delawarensis*) in Henderson County on 25 November 1998 by Wayne Forsythe and Ron Selvey. The Committee accepted material written by Forsythe. The species is already on the Official List, but this is the first report of the species accepted by the Committee for the mountains.

Atlantic Puffin (*Fratercula arctica*) (00-02). Two individuals were seen in the Atlantic Ocean northeast of Oregon Inlet on 30 January 1999 by Brian Patteson and many other birders. The Committee accepted a written description provided by Jeff Phippen. Based on the Carolina Bird Club Records Committee Regulations, the species is hereby elevated from the Provisional List to the

Official List, as three records have now been accepted. However, all three are sight records, and photos or a specimen are desired.

Anna's Hummingbird (*Calypte anna*) (00-19). An immature male seen by Judy Walker and many others at her feeder in Charlotte from 29 November 1998 to 4 March 1999, and banded and photographed by Bob and Martha Sargent, was accepted. This is the first record for the state, and acceptance of the written material (from Judy Walker) and the photographs places the species directly onto the Official List.

Ash-throated Flycatcher (*Myiarchus cinerascens*) (00-04). One was videotaped in Henderson County on 28 October 1999 by Wayne Forsythe. This is the third accepted state record. As there is an accepted photo for a bird at Pea Island a few years ago, the species is already on the Official List. This is also the first accepted record from the mountains.

Ash-throated Flycatcher (00-05). One was observed by a group of six birders at Bodie Island on 7 November 1999. The Committee accepted the description provided by David Hughes. This is the fourth accepted record, the second for the coast; one record is from the eastern Piedmont, and the other record (00-04) is from the mountains.

Cave Swallow (*Petrochelidon fulva*) (00-09). One individual was observed by Lori and Dwayne Martin and Dominick and Emma D'Ostilio in Iredell County on 20 December 1999. The Committee accepted both written material from the Martins and a sketch from Dominick D'Ostilio. The species is already on the Official List, and this is the fifth accepted record, but the first true inland one. The other four records are all from coastal (or near-coastal) counties – Carteret, Craven, Onslow, and Dare.

Black-throated Gray Warbler (*Dendroica nigrescens*) (00-15). One was observed by Kent Fiala on Roanoke Island on 7 October 2000. This is the fourth accepted record for the state, and thus the species is already on the Official List. However, there is no photo or specimen yet for the state.

MacGillivray's Warbler (*Oporornis tolmiei*) (00-20). An individual found freshly road-killed in central Hyde County on 6 November 1998 (by Kelly Davis) was accepted. The Committee accepted the written material provided by John Fussell, who examined the specimen, which has been deposited at the N.C. Museum of Natural Sciences. The Committee also accepted a confirmation letter from the Museum's John Gerwin in lieu of viewing the specimen or a photograph of the specimen. This is the first record for the state, and acceptance of the description and the specimen (through the confirmation letter) places the species on the Official List.

Brambling (*Fringilla montifringilla*) (99-04). A winter-plumaged individual at a feeder in Brevard was videotaped by Shawn Stevens on 31 October 1998. The Committee accepted the photographic evidence (videotape and/or still photos from the tape), but no written description was available for review. A copy of the videotape has been deposited at the N.C. Museum of Natural Sciences for permanent documentation of this first state record, adding the species to the Official List.

UNACCEPTED SIGHTING

The bird is judged to be a species other than that reported, or the bird is insufficiently documented to identification of the species reported.

Yellow-billed Loon (*Gavia adamsii*) (96-18). One was reported along the southern coast in December 1995. A first vote yielded an Unresolved verdict, and the description was sent to outside review. The outside reviews were mixed, and some indicated that Common Loons (*G. immer*) could not be completely eliminated. A second Committee vote returned a "Not Accepted" verdict, based on these reviews. The Yellow-billed Loon has been found at a number of lakes in the northeastern United States but perhaps has not previously been reported as valid on the Atlantic coast (and not in North Carolina). The report might well have been correct, but the Common Loon is quite numerous on the Atlantic, and some purported Yellow-billed reports from the East likely involved Commons.

White-chinned Petrel (*Procellaria aequinoctialis*) (96-14). One was reported (and photographed at a distance) in the Gulf Stream off the coast in October 1996. A first vote yielded an Unresolved verdict, and the report was sent to several birders (around the world) familiar with the species. These outside reviews were mixed. Outside reviewers mentioned that this species can easily be confused with the Westland Petrel (*P. westlandica*) and the Parkinson's Petrel (*P. parkinsoni*), though the latter two are not found in the Atlantic. (The White-chinned is found in the oceans of the southern hemisphere, including the South Atlantic.) As there is no confirmed record of White-chinned Petrel from the United States (American Birding Association Checklist Committee 2000), and as the outside reviews were mixed, the Committee's second vote gave a "Not Accepted" verdict. In summary, the Committee felt that there was not strong enough documentation of this single-observer report to place the species on North Carolina's Provisional List, even though the species may have been correctly identified.

Magnificent Frigatebird (*Fregata magnificens*) (00-11). One report from the inner Coastal Plain during December 1998 was not accepted. One or two reviewers were not convinced the bird was even a frigatebird, but the main concern was that the description was not thorough enough to rule out other

frigatebird species, as a far inland report in December would be highly unusual even for a Magnificent Frigatebird, which is seen once or twice a year coastally during the warmer months. There is one record of Lesser Frigatebird (*F. ariel*) from Maine (American Birding Association Checklist Committee 2000).

White-tailed Kite (*Elanus leucurus*) (00-21). A previously published sight report from Davie County in November 1946 (Knox 1947) was not accepted. A number of Committee members believed that the bird was likely a Northern Harrier (*Circus cyaneus*). The species is already on the Official List, with three accepted records, one having been photographed from Fort Fisher (though full details of this latter record have yet to be published).

White-tailed Kite (00-22). A sight report from the eastern Coastal Plain in January 2000 was not accepted. Several Committee members felt that the bird was misidentified and was probably a Northern Harrier or a Rough-legged Hawk (*Buteo lagopus*), both of which were seen by other observers in the same area during the same time period.

Common Greenshank (*Tringa nebularia*) (00-01). One was reported from the Outer Banks in spring 1994. This single-observer sight report contained meager details, and the observer even indicated that the report was likely not convincing. There are no accepted records for this Old World shorebird in North Carolina.

Brown Skua (*Catharacta lonnbergi*) (96-12). One bird was well described and photographed from the Gulf Stream in May 1993. A first vote by the Committee yielded an Unresolved vote, primarily because none of the Committee members who voted on this report was familiar with this species. As a result, the report and photos were sent for outside review to several ornithologists around the world familiar with skuas and with this southern hemisphere species. A second Committee vote gave a "Not Accepted" verdict, based on the fact that review comments were mixed, with one or two reviewers believing the bird to be a Brown and others concerned about variation in South Polar Skua (*C. macconnicki*). The skua taxonomy is unsettled as to how many species there are, and some species have color phases. The reported identification might well be a correct one, and it is hoped that one of the national records committees – either the American Ornithologists' Union or the American Birding Association – can review the photos and text and make a determination. However, for the present, there are no accepted North American records for Brown Skua (American Birding Association Checklist Committee 2000).

Lazuli Bunting (*Passerina amoena*) (00-10). Two males reported from a feeder in the eastern Piedmont in spring 1996 were not accepted. The details were too brief for acceptance, as well as the seeming unlikelihood of two males

together at a feeder. The species is already on the Official List, as the sole accepted record was also accompanied by a photo.

UNACCEPTED ORIGIN

The reported identification is judged to be accurate, but the origin of the bird is uncertain (and thus might not be of natural origin).

Black-bellied Whistling-Duck (*Dendrocygna autumnalis*) (00-16). An individual photographed from the northern coast in spring 1998, as reported in Lee (2000), was considered not to be of wild/natural origin. The Committee did not see or review the photograph for accuracy. There are no accepted records of wild individuals of this species in North Carolina.

White-faced Whistling-Duck (*Dendrocygna viduata*) (00-17). An individual photographed from the northern coast in spring 1998 (Lee 2000), with the above species of waterfowl, was considered not to be of wild/natural origin. The Committee did not see or review the photograph for accuracy. There are no accepted records of wild individuals of this species in North Carolina, nor has a record of a bird judged to be wild been accepted for the United States (American Birding Association Checklist Committee 2000).

UNRESOLVED

Further consideration by the Committee is needed.

Franklin's Gull (99-01). A sight report of an individual seen in the southern mountains in late fall 1997 was unresolved (*i.e.*, more than 50% accept votes but at least 25% non-accept votes). The details were ruled to be inclusive for some Committee members to feel certain that the species was correctly identified. The species is already on the Official List, but this was apparently a first report for the mountain region.

Cave Swallow (00-08). A sight report of multiple birds from the southern coast in late fall 1999 was unresolved. Though the species was likely correctly identified, the details did not completely rule out Cliff Swallow (*Petrochelidon pyrrhonota*) for some Committee members.

Smith's Longspur (*Calcarius pictus*) (00-13). A sight report of one in the Piedmont in early January 1998 was unresolved. Some members felt the details did not exclude Lapland Longspur (*C. lapponicus*) or other sparrow-like birds. Smith's Longspur is already on the Official List, with three accepted records.

White-winged Crossbill (*Loxia leucoptera*) (00-14). A sight report of an adult male from the mountains in June 1998 was unresolved. Several reviewers were not convinced that an immature or variant Red Crossbill (*L. curvirostra*) was

eliminated, as they may have wingbars (and the bird was seen with a flock of Red Crossbills). This would presumably be the first summer report for the state for White-winged Crossbill, which is already on the Official List (with a number of winter records).

Discussion

The review of reports by the North Carolina Bird Records Committee for 1999-2000 resulted in adding seven species to the North Carolina Official List. Bulwer's Petrel, Limpkin, and Atlantic Puffin have been elevated from the Provisional List; and Swinhoe's Storm-Petrel, Anna's Hummingbird, MacGillivray's Warbler, and Brambling have been directly added to the Official List. The Provisional List has lost the three species mentioned above. The current Official List is 427 species, and the Provisional List is now 14 species, for a total of 441 species on the state's Accepted List.

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Capture Rate of American Kestrel During Non-breeding Season Influenced by Sex of Bird in Upstate South Carolina

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Introduction

Assuming equal distribution of male and female American Kestrels (*Falco sparverius*) according to genetic frequency, a near equal capture rate might be anticipated (Cooke *et al.* 1987). Conversely, it is known that during the nesting season males tend to provide most of the female's energetic needs, so males would be more available for capture during the breeding season (Dawson *et al.* 2001). Blood parasite status may reduce prey gathering ability and motility, and hence capture rate (Dawson *et al.* 2000). A study during the kestrel non-nesting season, which has been roughly established in South Carolina as August through March (Clark 1983; Cely *et al.* 1988), was undertaken.

Methods

Bal-chatri noose traps were employed during the study period from fall 1996 through spring 2001. All kestrels captured and banded from two adjacent banding locations in Abbeville and Greenwood Counties, South Carolina, were included in the study. Birds were captured without regard to sex. Common house mice (*Mus musculus*) were captured from a local roller mill with live traps according to Bub (1991). Birds were sexed according to North American Bird Banding guidelines and aged as HY (Hatch Year) or AHY (After Hatch Year) accordingly (North American Bird Banding Manual 1991, 1997). Birds were weighed to the nearest 0.1 gram. Blood was collected with a 23 gauge needle from a superficial vein between the hallux and second toe after thorough alcohol cleansing, and blood was smeared on a glass slide for air drying. Smears were stored at room temperature until Wright/Giemsa staining on an automated hematology stainer and forwarded to Dr. Thaddeus Graczyk for blood parasite qualitative identification in a blinded fashion. Wing cord was measured at the capture site to the nearest millimeter. Bird status, time and date of capture, and location were recorded prior to release. All studies were performed in accordance with Master Banding permit 22771. Statistical application was advised by Professor Bruce White at Lander University, which compared males vs. females applying probability formula and Z chart comparison.

Results

Sixty-six kestrels were captured during the study period, 42 male and 24 female. The null hypothesis of equal capture rate was rejected, and an alternate hypothesis of male > female capture success was accepted. Wing cord, weight, age, and parasite status are recorded in the Table. Tukey t tests on male vs. female weight and wing cord were statistically significant at $P < 0.05$. No difference was seen in the age of males (HY = 2, AHY = 1) for males vs. females with non-paired two-tailed t test. Blood parasite studies were performed on 24 of the 66 birds captured. Of the 24 studied, 4 of 18 males harbored *Hemoproteus*, and one had *Plasmodium*. For females, 6 of 6 harbored *Hemoproteus*. During the study, 21 recaptures were recorded. Fourteen were males and seven females. Two recoveries were documented during the study, one road kill male in the vicinity of the capture site was found shortly after capture, and one freshly dead female found during the kestrel nesting season on 7 June 2001 (originally banded on 30 November 1996). Young birds were described at the site by the person who returned the female kestrel's band.

Discussion

The observed discrepancy between capture rate for males vs. females may be attributed to several factors. The 100% *Hemoproteus* infestation incidence in females compared to 28% (*Hemoproteus* plus *Plasmodium*) is noteworthy and may explain the discrepancy, although females are larger than males and are more successful in allocating energy to reduce parasite burden (Dawson *et al.* 2001; Wheeler *et al.* 1995). It is unclear whether the winter population in the South Carolina Piedmont is predominately resident (*Falco sparverius sparverius*) or migratory (*Falco sparverius*), although a previous study suggests that they are migratory (Cely *et al.* 1988). In the current study area, however, paired kestrels have been identified during the breeding season, and the female bird recovered during the breeding season support both resident and migratory populations in the study area. Whether the aforementioned discrepancy represents increased population density of males in the study area is unclear, although migrating males generally are the first to return to nesting areas, while females tend to remain closer to breeding grounds (Clark 1983). Since females assume the primary role in species propagation, they simply may be more hesitant to take risks. Studies of wintering kestrels show that females out compete males for prime hunting habitat (Ardia *et al.* 1997). This Piedmont area is heavily forested, with limited open areas in stable Mennonite farm areas providing prime but limited American Kestrel habitat. This results in concentration of several raptor species that share similar habitats.

Nest box placement studies and future band recoveries should help further clarify the kestrel population in the study area (Rohrbaugh *et al.* 1997).

Data

	Body Wgt	Wing Cord	Parasites	N Size Total	Retrap Number	Age* HY/AHY ±SD
	GRS/Mean ± SD	MM/Mean ± SD	Positive/ # Studied			
Males	105.5±8.5	186.5±4.6	4 +1/18	42	14	1.38±0.5
Females	119.1±17	193.2±3.9	6/6	24	7	1.38±0.5

* HY = Hatch Year; AHY = After Hatch Year

Acknowledgments

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Birds of the Carolinas Student Research Grants Program

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Fall 2000 North American Migration Count in South Carolina

Donna Slyce Bailey

176 Raven's Place

Winnsboro, SC 29180

On September 16, 2000, the Fall 2000 North American Migration Count was held in 11 counties across South Carolina. 20,093 individuals in 200 species were tallied by the reporters. 104 observers divided into 75 parties covered 11 counties. Despite a lower number of counties than usual participating, 29 species of warbler were found, including multiple reports of Golden-winged Warbler, Blue-winged Warbler, Nashville Warbler, Tennessee Warbler, and Blackburnian Warbler. Warbler species reported by only one county include Orange-crowned Warbler (Georgetown), Cape May Warbler (Fairfield), Prothonotary Warbler (Charleston), Louisiana Waterthrush (Georgetown), and Canada Warbler (Spartanburg). Compared to last year's tally of 25 warbler species reported from 12 counties, it was a better day for warbler diversity in 2000. Five Nashville Warblers were reported from four different counties (Aiken, Colleton, Fairfield, and Lexington), perhaps amounting to a "wave" of migration.

Ten species of birds were reported from every county, indicating widespread and adaptable species. These ten species are: Great Blue Heron, Turkey Vulture, Red-tailed Hawk, Mourning Dove, Belted Kingfisher, Blue Jay, Carolina Chickadee, Tufted Titmouse, Northern Mockingbird, and Northern Cardinal. As befits their top predator status, the number of Red-tailed Hawks is lower than the numbers of the other species.

Among the highlights of the Fall 2000 North American Migration Count are a Bicknell's Thrush, found in Colleton county and carefully identified by song, and American White Pelicans, found in Jasper county. 28 species were "exclusives," found only in one county. The exclusives are distributed as follows:

Charleston: 4

Cherokee: 2

Colleton: 2

Fairfield: 2

Georgetown: 5

Jasper: 9

Spartanburg: 4

County Summaries

Aiken County (AIKE): 103 species, 2022 individuals. 60° F to 75° F.

Start Time: 6:35 AM

Stop Time: 7:55 PM

Coordinator: Anne Waters
1621 Apple Valley Drive
Augusta, GA 30906
706/793-2788

Participants: Gary Gray, Judy Gregory, Christine Hadley, Gene Howard, Joan Howard, Sandra Johnson, Paul Koehler, Mark Komorski, Richard Lux, Alice Walker, Doug Walker, Vernon Waters

Aiken County found 2 early Blue-winged Teal among a nice selection of waterfowl that included the more expected Canada Goose, Wood Duck, and nice numbers of Mallard.

Beaufort County (BEAU): 52 species, 610 individuals. Temperatures not recorded.

Start Time: 2:22 PM

Stop Time: 7:37 PM

Coordinator: Robin Carter
4165 East Buchanan Drive
Columbia, SC 29206
803/782-8820

Participants: Caroline Eastman, Heidi Hoerman

Beaufort County reported two nice to find species – Seaside Sparrow (one of only two counties to do so for the Fall 2000 Count) and Marbled Godwit.

Charleston County (CHAR): 144 species, 4602 individuals. 65° F to 90° F.

Start Time: 5:30 AM

Stop Time: 9:30 PM

Coordinator: Perry Nugent
2260 Dallerton Circle
Charleston, SC 29414
843/556-3841

Participants: Mike Bernard, Jim Brownlee, Sue Brownlee, George Crumley, Janice Fanning, Dennis Forsythe, Donna Forsythe, Dot Glover, Brad Jaynes, Ben Smith

Charleston's four exclusives were Least Bittern, Yellow-crowned Night-heron, Chuck-will's-widow, and Prothonotary Warbler.

Cherokee County (CHER): 78 species, 1408 individuals. 68° F to 84° F.

Start Time: Not reported

Stop Time: Not reported

Coordinator: Lyle Campbell
126 Greengate Lane
Spartanburg, SC 29307
864/585-1228

Participants: Claude Cobb, David Collopy, Ken Garrett, J. B. Hines, Myra Hines, Karla Lavender, Maxie Nix, Alan Rose, Ed Wilde

The two species exclusive to Cherokee County were Cedar Waxwings (perhaps a little early) and an amazing three Bachman's Sparrows (a species that is difficult to find in the South Carolina Piedmont).

Colleton County (COLL): 116 species, 2375 individuals. 61° F to 75° F.

Start Time: 7:10 AM

Stop Time: 6:00 PM

Coordinator Sharon Brown
P. O. Box 327
Adams Run, SC 29426
843/889-8299

Participants: Mrs. M. A. Aldenderfer, Robin Carter, Caroline Eastman, Heidi Hoerman

Bicknell's Thrush and a nice King Rail were the two species exclusive to Colleton County.

Fairfield County (FAIR): 74 species, 595 individuals. 50° F to 70° F.

Start Time: 4:30 AM

Stop Time: 8:00 PM

Coordinator: Donna Slyce Bailey
176 Raven's Place
Winnsboro, SC 29180
803/635-7032

Participants: Buddy Bailey, Bob Ellis

The species found exclusively in Fairfield County were Gray-cheeked Thrush and Cape May Warbler.

Georgetown County (GEOR): 114 species, 1563 individuals. 61° F to 75° F.

Start Time: 5:30 AM

Stop Time: 6:30 PM

Coordinator: Jack Peachey
103 Walnut Circle
Conway, SC 29520
843/347-5810

Participants: David Donmoyer, Renee Lamm, Murray Honick, Barbara Maxwell, Bob Maxwell, Gary Phillips, Paul Rogers

Great Black-backed Gull, Common Tern, Orange-crowned Warbler, and Louisiana Waterthrush are among the species exclusive to Georgetown County. Nice numbers of Piping Plovers round out Georgetown's list of exclusives.

Hampton County (HAMP): 51 species, 812 individuals. 62° F to 85° F.

Start Time: 7:00 AM

Stop Time: 4:30 PM

Coordinator: Carroll Richard
P.O. Box 893
Hampton, SC 29924
803/943-4661

Hampton County reported 11 Northern Bobwhite, a species increasingly hard to find in South Carolina and the highest number of bobwhite found in the state for this count. Hampton County also reported 3 Purple Gallinules, always a nice find.

Jasper County (JASP): 76 species, 2021 individuals. 70° F to 80° F.

Start Time: 5:30 AM

Stop Time: 6:00 PM

Coordinator: Patricia E. Metz
Parkway Business Center, Suite 1000 Business Center Drive
Savannah, GA 31405
912/652-4415 ext. 103

Participants: Amy Bess, Chris Graves, Valda Kelly, Mary Ellen Kirkland, Talley Kirkland, Barry Lowes, Philomena Lowes, John Metz, Keith Penrose, Ray Porter, Lauree San Juan, Leanna San Juan, Paul San Juan

Jasper County had a long list of exclusives, including American White Pelican, Gadwall, Mississippi Kite, American Coot, and Least Flycatcher. Jasper also had an assortment of shorebirds that were exclusives, including Black-necked Stilt, American Avocet, Stilt Sandpiper, and Buff-breasted Sandpiper.

Lexington County (LEXI): 52 species, 1197 individuals. Temperatures not reported.

Start Time: 7:00 AM

Stop Time: 8:00 PM

Coordinator: Molly Bonnell
202 Cannon Trail Road
Lexington, SC 29072
803/359-6280

Participants: Andrea Ceselski

Lexington County was among those reporting somewhat early Palm Warblers, as well as one of the five Nashville Warblers found on count day.

Spartanburg County (SPAR): 92 species, 2888 individuals. 68° F to 84° F.

Start Time: Not reported

Stop Time: Not reported

Coordinator: Lyle Campbell
126 Greengate Lane
Spartanburg, SC 29307
864/585-1228

Participants: Frankie Altman, Laura Bannon, Beth Bartel, Tim Brown, Sarah Campbell, Alan Chalmers, Dan Codispoti, Tom Moore Craig, Linda Deahl, Richard Deahl, Glenn Englehardt, David Ferris, John Freeman, Sheena Freeman, Robin Gilman, Milady Gonzalez, Chip Green, Conway Henderson, Jessie Ivy, Tammy King, Michael Miller, Bill Moody, Nora Moore, Mary Ann Myers, Bob Powell, Doug Raynor, Bob Scott, Ginny Scott, Walton Scott, Mac Shealy, Dick Thorpe, Lois Thorpe, Gerald Thurmond

Four species were found exclusively in Spartanburg County: Common Nighthawk, Canada Warbler, Field Sparrow, and Purple Finch.

North American Migration Count South Carolina

	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
16 September 2000	1		6		41		3		4		1	56	6
Pied-billed Grebe									13			13	1
American White Pelican		12	61		106		3					182	4
Brown Pelican	3	8	9		4	10	202	1	81		2	320	9
Double-crested Cormorant	1		21		37		3		42			104	5
Anhinga			2									2	1
Least Bittern													
Great Blue Heron	7	2	16	1	18	8	3	4	12	4	17	92	11
Great Egret	9	7	65		43	19	25	89	24	4	6	291	10
Snowy Egret		19	25		14		14	2	6			80	6
Little Blue Heron		4	12		3		2	5				26	5
Tricolored Heron		2	17		13		8	1	14			55	6
Cattle Egret	72		10		17				17	159		275	5
Green Heron		1	9	1	4		1				5	21	6
Black-crowned Night-Heron			10		2		1					13	3
Yellow-crowned Night-Heron			8									8	1
White Ibis	3		83		46		90		54			276	5
Glossy Ibis			3		3		1		21			28	4
Wood Stork		1	62		27		19	14	4			127	6
Canada Goose	2		10	38	2	2		1			261	311	4
Wood Duck	15		79		8						1	100	6
Mottled Duck			17					3	12			37	3
Mallard	26		10	5					13		151	208	6
Northern Pintail	2											2	1
Blue-winged Teal		7	107						78			192	3
Gadwall									105			105	1
Black Vulture	9		12	7	45	17		66	15	4	18	193	9
Turkey Vulture	15	9	59	25	56	42	7	86	22	17	25	363	11

16 September 2000	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
Willet	1	2	17		3		6					28	4
Spotted Sandpiper			1		1		1		1			5	5
Marbled Godwit		16										17	2
Ruddy Turnstone			6		4		13		15			38	4
Sanderling		7	15		14		44					80	4
Semipalmated Sandpiper			75		5				42			122	3
Western Sandpiper	2		2				2					4	2
Least Sandpiper	120	100	25		5		4		156			308	5
peep sp.					21							125	3
Dunlin			8		1							9	2
Stilt Sandpiper									14			14	1
Buff-breasted Sandpiper									31			31	1
Short-billed Dowitcher			76				4					80	2
dowitcher sp.									120			120	1
Common Snipe			2								1	3	2
Laughing Gull		159	27		147		15		10			358	5
Ring-billed Gull		2	13		6		39					60	4
Herring Gull		2	12		4		2					20	4
Great Black-backed Gull							1					1	1
Gull-billed Tern		1			8							9	2
Caspian Tern			1		13		21		49			84	4
Royal Tern		12	11		39		11		2			75	5
Sandwich Tern			15		9		6					30	3
Common Tern							1					1	1
Forster's Tern		14	19		31		2					66	4
Black Tern					4				6			10	2
Black Skimmer		2	100				4					106	3
Rock Dove	140	26	108	39	23	8	3	5		77	66	495	10
Eurasian Collared Dove			3		22							25	2
Mourning Dove	88	21	60	70	45	13	44	31	18	199	176	765	11

16 September 2000	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
Common Ground-Dove							37		1			38	2
Yellow-billed Cuckoo	5		3	3		1					1	14	6
Eastern Screech-Owl	7		1	1		2	3				1	15	6
Great Horned Owl	1		3	1		2			1			8	5
Barred Owl	2		7			3	2				2	16	5
Common Nighthawk											1	1	1
Chuck-will's-widow			1									1	1
Whip-poor-will				1			1					2	2
Chimney Swift	33		331	10	12	17		15		66	38	522	8
Ruby-throated Hummingbird	8		9	8		7	2	3	2	7	36	82	9
Belted Kingfisher	2	4	7	4	6	2	3	2	1	1	19	51	11
Red-headed Woodpecker	16		8		3	3	1	2		3	1	37	8
Red-bellied Woodpecker	31	3	15	8	12	7	8		1	22	29	136	10
Yellow-bellied Sapsucker	1										5	6	2
Downy Woodpecker	23		3	22	17	4	8	1	1	6	12	97	10
Hairy Woodpecker	1				2		1					4	3
Red-cockaded Woodpecker					1			1				2	2
Northern Flicker	9		5	6	1	3	1		2		5	32	8
Pileated Woodpecker	12		6	2	4	3	2	1		2	10	42	9
Eastern Wood-Pewee	18		7	2	4			2			20	53	6
Acadian Flycatcher			4	1						3		8	3
Least Flycatcher									1			1	1
Empidonax sp.						2						2	1
Eastern Phoebe	4			14		4	1		1	4	21	49	7
Great Crested Flycatcher	3		2		5	1				3	1	15	6
Eastern Kingbird	2		12		1		4	7	6	15	3	50	8
Purple Martin	4						24				12	40	3
Tree Swallow	2		700		45	1	340		102		2	1191	6
Northern Rough-winged Swallow	117		4	1			1					124	5
Bank Swallow			2				1					3	2

	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
16 September 2000													
Barn Swallow	3		38		2	1	20	1	52		25	142	8
Blue Jay	67	6	59	76	37	14	30	1	1	41	61	393	11
American Crow	80	6	41	122	66	50	25	9		69	223	691	10
Fish Crow	9	17		1	11	2	2	83				125	7
crow sp.		3			29	12	1	25				70	5
Carolina Chickadee	70	12	65	42	47	16	8	2	2	40	82	386	11
Tufted Titmouse	51	4	50	38	37	13	18	2	2	46	59	320	11
White-breasted Nuthatch	5		1	1	14	2	2	1			4	28	7
Brown-headed Nuthatch	17		6	13	15	2		8		8	38	107	8
Carolina Wren	72	6	34	24	17	11	15		1	51	56	287	10
House Wren	1		1	1	1		2				2	8	6
Marsh Wren			10		2				3			15	3
Ruby-crowned Kinglet			1	2		1	1					5	4
Blue-gray Gnatcatcher	8	1	13	3	5	2	4		6	6	3	51	10
Eastern Bluebird	35		36	44	16	7	20	20		28	52	258	9
Veery	2		6		1	9						18	4
Gray-cheeked Thrush					1	3						3	1
Bicknell's Thrush					1							1	1
Swinson's Thrush			2		1	12	1					16	4
Wood Thrush			1		4						4	9	3
American Robin	7		40	128		1				3	136	315	6
Gray Catbird	9		10	4	2	1	3		6	2	31	68	9
Northern Mockingbird	44	3	49	57	38	7	24	5	13	61	77	378	11
Brown Thrasher	12	2	17	11	6	3	7		4	8	43	113	10
Cedar Waxwing				15								15	1
Loggerhead Shrike	3		3	1	3	1	1	3		2		17	8
European Starling	82		177	215	32	2	32	4		9	67	620	9
White-eyed Vireo	34	1	67	2	18	2	20			2	4	150	9
Blue-headed Vireo	2						2					4	2
Yellow-throated Vireo	2		2	1	5	1					3	14	6

	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
16 September 2000													
Red-eyed Vireo	9		158	2	13	1	4		2		9	198	8
Blue-winged Warbler			3								1	4	2
Golden-winged Warbler	2				1							3	2
Tennessee Warbler	1		2								4	7	3
Orange-crowned Warbler							2					2	1
Nashville Warbler	1				2	1				1		5	4
Northern Parula	24		22	1	12	7	3			1	6	73	7
Yellow Warbler			7		2	2						14	4
Chestnut-sided Warbler	3		17	9						1	8	38	5
Magnolia Warbler	4		8	10			2		1		6	31	6
Cape May Warbler						1						1	1
Black-throated Blue Warbler			5		3							8	2
Yellow-rumped Warbler				1		1	1				1	2	2
Black-throated Green Warbler						1					1	3	3
Blackburnian Warbler			1			1					1	3	3
Yellow-throated Warbler	4		5		2							11	3
Pine Warbler	62	3	26	17	83	6	1	14		13	25	250	10
Prairie Warbler	2		19			1	1				1	24	5
Palm Warbler			9	2	8		15		1	1	2	38	7
Black-and-white Warbler	7		6	6	4	1	1				5	30	7
American Redstart	23		67	16	18	3	15		10	9	4	165	9
Prothonotary Warbler			1									1	1
Worm-eating Warbler	1			1								2	2
Ovenbird	1		2									3	2
Northern Waterthrush	1		8		1		1		3			14	5
Louisiana Waterthrush	1						1					1	1
Common Yellowthroat	7		187	4	19		9		26	3	7	262	8
Hooded Warbler			6				1					7	2
Canada Warbler											2	2	1
Yellow-breasted Chat	1		1					1				3	3

16 September 2000	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
Summer Tanager	9	4	4	4	13	3				6	2	41	7
Scarlet Tanager	3	2	2	1	1	1					7	14	5
Northern Cardinal	134	14	41	30	35	29	37	10	8	54	90	482	11
Rose-breasted Grosbeak	1	3	3		1					9		5	3
Blue Grosbeak	1	1	1			9		25	1		4	45	5
Indigo Bunting	31	1	6		2	17			3			62	7
Painted Bunting	1	1	5									9	3
Eastern Towhee	27	1	7	11	21		2	3		6	18	96	9
Bachman's Sparrow				3								3	1
Chipping Sparrow				12	12						10	34	3
Field Sparrow											3	3	1
Seaside Sparrow		1	1								15	2	2
Song Sparrow				24								39	2
Bobolink		250			150	27						427	3
Red-winged Blackbird	26	18	61		382	63	37	1	25		13	626	9
Eastern Meadowlark				10	1						201	212	3
Brewer's Blackbird				35					66		300	335	2
Boat-tailed Grackle		25	42		90		14					237	5
Common Grackle	87	10	78	90	5		4	200		29	49	552	9
Brown-headed Cowbird		13	13	1	4							18	3
Baltimore Oriole	1	5	5	1							1	8	4
Purple Finch											2	2	1
House Finch	16		56	3	3	4	9	8		39	51	189	9
American Goldfinch	1			6		22				41	39	109	5
House Sparrow	25	6	25				8	1		4	15	84	7
duck sp?					11		1					12	2
archilocus sp?						1						1	1
TOTALS	103 2022	52 610	144 4602	78 1408	116 2375	74 595	114 1563	51 812	76 2021	52 1197	92 2888	200 20093	

16 September 2000	AIKE	BEAU	CHAR	CHER	COLL	FAIR	GEOR	HAMP	JASP	LEXI	SPAR	TOTAL Individuals	# Counties Reporting Species
Observers	17	3	11	9	2	3	8	1	12	2	36	104	
Parties	8	1	6	10	5	1	3	1	8	1	31	75	
#Counties	1	1	1	1	1	1	1	1	1	1	1	11	
Hours foot	31.5	2	24	12.5	4.5	8	14	5.83	18	0	40.5	160.83	
Hours car	10.5	3	10	11.5	12	5	4.75	3.66	3	12	20.5	95.91	
Hours boat	0	0	0	0	0	0	0	0	4.5	0	6	10.5	
Hours canoe/kayak	0	0	0	0	0	0	0	0	0	0	0	0	
Hours bike	1	0	0	0	0	0	0	0	0	0	0	1	
Hours other	0	0	0	0	0	0	0	0	0	0	0	0	
Miles foot	18.5	1	13	15	2	5	10	3.5	2.5	1	31	102.5	
Miles car	119.7	88	165	163	158	237	78	84	24	163	299	1578.7	
Miles boat	0	0	0	0	0	0	0	0	16	0	12	28	
Miles canoe/kayak	0	0	0	0	0	0	0	0	0	0	0	0	
Miles bike	5	0	0	0	0	0	0	0	0	0	0	5	
Miles other	0	0	0	0	0	0	0	0	0	0	0	0	
Hours Feeder Watch	1.5	0	0	6	0	0	0	0	0	-	18	25.5	
#Feeder Watchers	2	0	0	3	0	0	0	0	0	2	12	19	
#Feeder Stations	5	0	0	3	0	0	0	0	0	-	9	17	
Hours Stationary	0	0	0	0	0	0	0	0	0	0	0	0	
#Parties Stationary	0	0	0	0	0	0	0	0	0	0	0	0	
#Observers Stationary	0	0	0	0	0	0	0	0	0	0	0	0	
Hours Owling	1.5	0	3	0.6	0	2	0	0	4.5	-	3	14.6	
Miles Owling	3	0	0	1	0	0	0	0	6	-	22	32	
# parties owling	1	0	3	2	0	1	0	0	3	-	4	14	
# observers owling	2	0	3	2	0	1	0	0	9	-	5	22	

General Field Notes

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First Record of MacGillivray's Warbler for North Carolina

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John Fussell

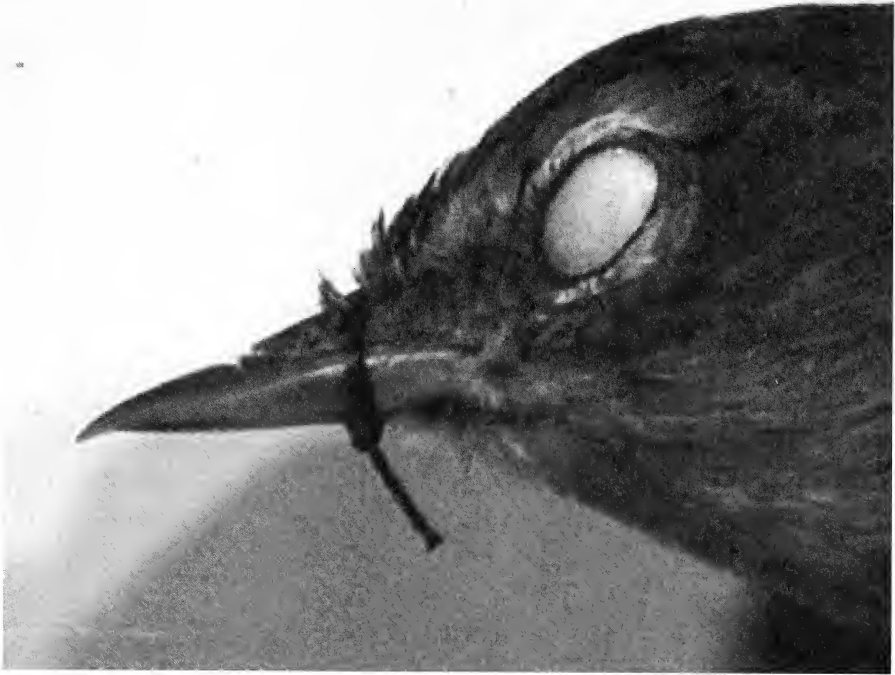
1412 Shepard Street
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On 6 November 1998, Davis found a freshly road-killed warbler of the genus *Oporornis* at her residence adjacent to US 64, near Lake Mattamuskeet, Hyde County, N.C. Three days later she told Fussell about the specimen, which she had placed in a freezer at the Mattamuskeet National Wildlife Refuge office. Fussell suggested the bird might be a MacGillivray's Warbler (*O. tolmiei*), in part because of the late date, and he transported the specimen to the Outer Banks Wildlife Shelter in Morehead City, where it was stored until picked up by John Gerwin and Becky Browning of the North Carolina Museum of Natural Sciences. The bird has been added to the collection of the Museum (NCSM # 19754).

Description of the bird: Our initial impression of the bird was that it was definitely an *Oporornis*, because of the hooded look and the presence of an eye ring or crescents (see below). However, it appeared to be much smaller and trimmer than a Connecticut Warbler (*O. agilis*). The coloration of the upperparts (excluding the head) and the tail were olive, except the primaries were slightly darker. There were no wingbars. The bird had a definite hood, with the head, throat, and extreme upper breast being gray (the center of the throat was slightly paler). The hood was quite conspicuous but was lighter than that depicted for adult males in the various field guides. The underparts, including the undertail coverts, were yellow, except for a slight olive wash on the flanks. There were whitish eye crescents above and below the eye, which would have been conspicuous in the field. The upper mandible was dark gray. The lower mandible was gray-brown and lighter than the upper mandible. The legs were pinkish.



MacGillivray's Warbler



Close-up showing the eye crescents of the MacGillivray's Warbler

The specimen was weighed and measured at the Wildlife Shelter and later at the State Museum. It was dissected at the State Museum and found to be an immature male, with light fat. The bird weighed 11.8 grams. Two measurements particularly relevant to species identification were: the length of the portion of rectrices extending beyond the undertail coverts was 20.5 mm; and the length of the tail subtracted from the length of wing (in a flattened position) was 11mm (61mm - 50mm).

Points considered in the identification of the bird, and the separation of it from Connecticut Warbler and Mourning Warbler (*O. philadelphia*), are summarized below:

Presence of eye crescents. This bird had well-defined, rather wide, eye crescents, one above the eye and one below. They did not extend in front of and behind the eye (there was not a complete eye ring). Dunn and Garrett (1997) caution that some Connecticut Warblers, at least in fall, can have a break in the rear portion of the eye ring and that female and immature Mourning Warblers

have a "variable thin broken eye ring or eye arcs." However, neither of these variations match the appearance of the eye crescents of the bird in question.

Absence of definite yellow color on the throat/presence of definite hood. According to Dunn and Garrett, most immature Mourning Warblers show yellow or yellow-buff on the throat. This was not the case with the specimen. Further, according to Dunn and Garrett, most immature Mourning Warblers do not have a complete hood (or breast band): The yellow color of the throat is connected to the yellow of the lower breast and belly. Again, this was not the case with the specimen in question.

Weight of the specimen. The bird weighed 11.8 grams. The bird had light fat but was not emaciated. Further, it was probably found before it had become severely dehydrated. So, it is probably not unreasonable to use this weight as an approximation of the weight of a live bird. Based on a sample of weights for MacGillivray's, Mourning, and Connecticut warblers (Dunning 1984), this specimen is almost certainly not a Connecticut Warbler. The average weight of that species is 15.2 grams. However, Mourning and MacGillivray's Warblers are more similar in size (although MacGillivray's average smaller); the weight of the specimen was consistent with either species.

The length of portion of the rectrices extending beyond undertail coverts. This measurement, 20.5 mm, strongly indicates that the bird is a MacGillivray's. For MacGillivray's the average length of this extension is 22 mm (Dunn and Garrett 1997). The Connecticut Warbler has a rather short tail that extends only about 10 mm beyond the undertail coverts. The Mourning Warbler is intermediate – the average length of the extension of the tail past the undertail coverts is 15 mm.

Length of the tail subtracted from the length of the flattened wing. For this specimen, this value was 11mm (61mm - 50mm). This value rules out Connecticut Warbler (range of 19-27 mm, see Pyle *et al.* 1987) but is consistent with either MacGillivray's Warbler or Mourning Warbler: The range for MacGillivray's is 10-12 mm (rarely to 15 mm), and the range for Mourning is 10-18 mm.

Summary

We are confident that the specimen is a MacGillivray's Warbler. Of the two similar species, Connecticut is easiest to rule out. This species can be eliminated from consideration based on the last two measurements discussed above (length of portion of rectrices extending beyond undertail coverts, and length of tail subtracted from length of flattened wing). Further, although Connecticut Warblers may rarely have broken eye rings, they never have broad eye crescents such as was the case with our bird. Separating MacGillivray's Warbler from Mourning Warbler is somewhat more difficult, especially in regard to morphometric data, because these two species are more similar in size. However, the length of the rectrices extending past the undertail coverts strongly indicates that the specimen is a MacGillivray's Warbler and not a Mourning. Further, the lack of a yellowish throat and presence of a complete

hood are much more consistent with the bird being a MacGillivray's Warbler and not a Mourning. Perhaps the best evidence that our bird was a MacGillivray's Warbler is the well-defined eye crescents. Although Mourning Warblers may have a thin broken eye ring, they do not have well-defined eye crescents as was the case with the specimen.

In March 1999, the specimen was examined by Dennis Paulson (Director, Slater Museum of Natural History, Tacoma, Washington), who is familiar with the species. He concurred with the identification of the specimen.

This represents the first record of this western species in North Carolina. However, an unidentified *Oporornis* was reported on the Ocracoke Island Christmas Bird Count on 30 December 1989 (*American Birds* 44:539, 702). If that bird were indeed an *Oporornis*, it was probably a MacGillivray's Warbler. Elsewhere in the Southeast, the species has been reported at least twice in both Florida and Georgia (Dunn and Garrett 1997; survey of *American Birds/Field Notes* through Volume 53, No. 4). One of the Georgia reports was of a bird measured and banded (at Jekyll Island). In Massachusetts, there are several reports of this species in recent years. At Cape May New Jersey, a bird found on November 12 lingered until January 10 (1997-1998).

Literature Cited:

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- Pyle, Peter, Steve Nowell, Robert Yunick, and David DeSante. 1987. *Identification Guide to North America Passerines*. Slate Creek Press, Bolinas, California.

Carolinabirds

Carolinabirds is an Internet e-mail discussion group about birds and birding in the Carolinas. Subscribers frequently post sightings to it similar to those found in Briefs for the Files, but unusual behavior receives more attention. Subscriptions are free. To subscribe, address an e-mail message to <majordomo@duke.edu>. Don't fill in the subject line. As your message, simply put, "subscribe carolinabirds" (without the quotes). You will receive a confirmation and more information shortly. Submissions for Briefs for the Files should be sent directly to Ricky Davis.

BRIEFS FOR THE FILES

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All Dates Winter 2000-01

Briefs for the Files is a seasonal collection of uncommon-to-rare or unusual North and South Carolina bird sightings and events which do not necessarily require a more detailed Field Note or article. Reports of your sightings are due the 20th of the month after the end of the previous season.

Winter = December 1 - February 28, due March 20

Spring = March 1 - May 31, due June 20

Summer = June 1 - July 31, due August 20

Fall = August 1 - November 30, due December 20

Reports can be submitted in any format, but I prefer that you type them and list the sightings according to the birds in checklist order (not according to dates or locations). If you submit your report to me through e-mail, please type your report directly into the message or copy it from a word processing program directly into the message. You may also attach your file to the e-mail, but if you do, please let me know the program used and also send a second version saved as a text (txt.) file.

Suitable reports for the Briefs include any sightings you feel are unusual, rare, noteworthy, or just plain interesting to you in any way! It is my responsibility to decide which reports merit inclusion in the Briefs.

Please be sure to include details of any rare or hard-to-identify birds.

I rely in part on sightings reported in Carolinabirds. Please don't, however, rely on me to pick up your sightings from Carolinabirds. Instead, please also send your sightings directly to me as described above.

If I feel that your sighting warrants a Field Note, I will contact either you or the appropriate state Field Notes editor. You may, of course, submit your Field Note directly to the editor without going through me.

RED-THROATED LOON: The only inland report received was of one on the pond at the US 64 and NC 42 interchange in eastern Edgecombe County, NC, Feb. 25 (Ricky Davis).

RED-NECKED GREBE: This always noteworthy species was found several times in North Carolina, with two on the Bodie-Pea Islands CBC Dec. 28 (*fide*

Paul Sykes), one on the Wilmington CBC Dec. 30 (*fide* Sam Cooper), and one at the Avon pier Feb. 25 (Josh Rose).

EARED GREBE: The Goldsboro, NC, Wastewater Treatment Plant (W.T.P.) once again hosted wintering Eareds, with from one to three being seen (Eric Dean, sev. obs.). Other reports included 1-2 at C. Hatteras, NC, Dec. 27 until at least early February (Harry LeGrand, Brad Carlson, sev. obs.), one at Myrtle Beach, SC, Dec. 9 (Murray Honick), and one at the Savannah River Site, SC, Dec. 21 (Anne Waters).

WESTERN GREBE: One was seen at the pier in Avon, NC, Feb. 19-21 (Bob Holmes, Wade Fuller, sev. obs.), providing a very rare sighting for the Carolinas.

NORTHERN FULMAR: The only ones found this winter were three off Hatteras, NC, Feb. 18 (Brian Patteson *et al.*).

BLACK-CAPPED PETREL: This species winters off our coast, usually in the Gulf Stream waters. Thus one found several miles inshore of the stream out of Hatteras, NC, Feb. 18 (Patteson *et al.*) was surprising.

SOOTY SHEARWATER: One on a Hatteras, NC, pelagic Feb. 3 (Patteson *et al.*) was very rare. There are only a handful of records of this species off our coast in winter.

DOUBLE-CRESTED CORMORANT: This species continues to increase as an inland winter resident. An impressive count of 1,075 on Jordan Lake, NC, CBC Dec. 31 (*fide* Norm Budnitz) bears this out.

ANHINGA: A few individuals of this species often linger into early winter in the Carolinas. Thus of note were five at Kinston, NC, Dec. 13 (Gene Howe).

LEAST BITTERN: A very rare winter sighting of this species was had at L. Mattamuskeet, NC, Dec. 9, as noted by Brad Carlson and Gordon Smith.

GREAT "WHITE" HERON: The bird at Brevard, NC, present since the summer, was last seen about Jan. 25 (*fide* Norma Siebenheller). It is interesting to note that when individuals of this form end up in the Carolinas, they seem to hang around for long periods.

REDDISH EGRET: One on the Charleston, SC, CBC Dec. 24 provided a rare winter report for this species (*fide* Ed Blich III).

CATTLE EGRET: Lingering or wintering Cattle Egrets included two at Savannah N.W.R., SC, Dec. 4 (Lex Glover *et al.*), one at the Savannah Spoil Site, SC, Dec. 15 (Steve Calver), and one on the L. Mattamuskeet, NC, CBC Dec. 29 (*fide* Allen Bryan).

GREEN HERON: Winter reports of Green Heron were up this year. Two were found on the Charleston, SC, CBC Dec. 24 (*fide* Ed Blich III), one was on the C. Hatteras, NC, CBC Dec. 27 (*fide* Harry LeGrand), one was at Sunset Beach, NC, Jan. 1 (Ricky Davis) and Jan. 21 (Will Cook and Randy Emmitt), and one was at Brevard, NC, Dec. 7 and 15 (Betty McIlwain). The latter sighting was quite rare and unusual for the mountains.

FULVOUS WHISTLING-DUCK: This species continued its presence in the Carolinas from the fall season. The fall's Savannah N.W.R., SC, bird was last reported Dec. 3 (Noel Wamer and Terry West); and the Magnolia Gardens, SC,

flock of four to seven was seen until at least Dec. 16 (Steve Compton). Others included one at the Goldsboro, NC, W.T.P. Dec. 1 until Jan. 1 (Josh Rose and Frank Rheindt; m. obs.), and a flock of 11 at the Crow Hill Impoundment, Carteret County, NC, Dec. 14 (*fide* John Fussell).

GREATER WHITE-FRONTED GOOSE: The only reports this winter were of one on the L. Mattamuskeet, NC, CBC Dec. 29 (Will Cook) and four at Santee N.W.R., SC, Jan. 9 (Lex Glover).

ROSS'S GOOSE: Always noteworthy, this species was found a handful of times. One was on the Bodie-Pea Islands, NC, CBC Dec. 28 (Paul Sykes), one was on the L. Wateree, SC, CBC Jan. 5 (Lex Glover *et al.*), and one was at the Silver Bluff Audubon Sanctuary, SC, Feb. 22-28 (Anne Waters).

TUNDRA SWAN: Reports of Tundra Swan away from the usual wintering areas included one on L. Hickory, NC, Jan. 13-22 (Dwayne & Lori Martin) and ten in flight over the Goldsboro, NC, W.T.P. Dec. 6 (Ricky Davis).

EURASIAN WIGEON: The Greenfield Lake, Wilmington, NC, bird returned for its third winter in a row (Greg Massey, sev. obs.) and remained until the end of the period.

BLUE-WINGED TEAL: One at Beaver Lake, Asheville, NC, Jan. 2 (Tim Lewis) provided a rare winter mountains report.

CINNAMON TEAL: This winter there were three Cinnamon Teal reported. One at the Goldsboro, NC, W.T.P. Dec. 2 (Eric Dean *et al.*, m. obs.) remained until the spring season. Another was found at L. Medcalf, Sunset Beach, NC, Dec. 10 and remained until at least Feb. 5 (Mary McDavit, m. obs.). One was also present at Savannah N.W.R., SC, from Feb. 4 (Barry Lowes) to Feb. 16 (Jack Peachey and Gary Phillips). The latter bird probably is the same individual that has been found at that refuge for about three years in a row.

REDHEAD: Some excellent counts of this species were had inland with 132 on L. Julian, Buncombe County, NC, Feb. 28 (Wayne Forsythe and Ron Selvey) and 150 at Blewett Falls Lake Dam, NC, Feb. 28 (Dick Burk).

COMMON EIDER: Eiders were scarce this winter, thus of note was the flock of nine on the Bodie-Pea Islands, NC, CBC Dec. 28 (*fide* Paul Sykes). The only other Common was at Atlantic Beach, NC, Feb. 22 until the end of the period (John Fussell).

HARLEQUIN DUCK: A female ranged between the Avon, NC, and Rodanthe, NC, piers from Jan. 27 until at least Feb. 25 (Brad Carlson, sev. obs., Jeff Lewis), for one of the few reports of this species during the last several years.

LONG-TAILED DUCK: Always noteworthy inland, reports of this duck included from one to four at Jordan Lake, NC, Dec. 31 until Jan. 7 (Will Cook, sev. obs., Ricky Davis), one on the Greensboro, NC, CBC Dec. 16 (*fide* Dennis Burnette), and one at Roanoke Rapids Lake, NC, Jan. 28 (Davis). On the coast, one was locally rare on the Hilton Head, SC, CBC Dec. 16 (*fide* Joe Williams).

COMMON GOLDENEYE: This species was reported in a widespread fashion this winter. Most counts were of a few birds, but the best total was the 22 at Jordan Lake, NC, Jan. 7 (Ricky Davis).

COMMON MERGANSER: There were more Common Merganser reports than normal this winter. Locally noteworthy sightings included seven at Jordan Lake, NC, Jan. 27 (Will Cook *et al.*), three at L. Townsend, Guilford County, NC, Feb. 17 (Dennis Burnette *et al.*), three in Transylvania County, NC, in early February (Tom Joyce), two near Furman, Hampton, SC, Jan. 24 (Lex Glover and Steve Lohr), and two on the Beaverdam arm of Falls Lake, NC, Dec. 27 (Brian Bockhahn). Singles were found at Kinston, NC, Dec. 8 until the end of the month (Betty Grady, Gene Howe, sev. obs.), L. Hickory, NC, Dec. 23 (Dwayne & Lori Martin), L. Julian, NC, Dec. 31 (Wayne Forsythe), and on the Shelby, NC, CBC Dec. 30 (Simon Thompson *et al.*). And finally the best wintering area for the species in the Carolinas, Phelps Lake, NC, hosted a large flock again with the highest count being 280 Dec. 26 (Derb Carter).

RED-BREASTED MERGANSER: The best inland totals reported included 22 on L. Julian, NC, Feb. 26 (Marilyn Westphal) and 20 at the Hendersonville, NC, W.T.P. Dec. 3 (Wayne Forsythe and Westphal).

OSPREY: In North Carolina wintering Ospreys can normally be found in very small numbers along the southern coastal areas. Thus of note were Ospreys found outside this region. Rare inland were one at the Goldsboro W.T.P. Dec. 2 (Eric Dean and Brian Pendergraft), one at Raven Rock State Park Dec. 16 (*fide* Paul Hart), and an amazing seven on the New Bern CBC Dec. 18 (*fide* Bob Holmes). Also of note were one at Duck Woods Golf Course on the Outer Banks Feb. 7 (Neal Moore), and one on the Pamlico County CBC Dec. 19 (*fide* Liz Lathrop).

NORTHERN GOSHAWK: This very rare visitor was found twice with an immature bird on the C. Hatteras, NC, CBC Dec. 27 (Derb Carter, Wayne Irvin, Keith Andre) and an adult on the north end of Roanoke Island, NC, Jan. 5 & 13 (Jeff Lewis).

GOLDEN EAGLE: Always noteworthy in the Carolinas, rare coastal reports included one on the ACE Basin, SC, CBC Dec. 31 (*fide* Pete Laurie) and another (or the same bird) at the Yawkey Wildlife Center, Georgetown, SC, Feb. 23 (*fide* Gary Phillips). Less unusual but still of interest was the immature in Alleghany County, NC, from late November until at least Dec. 23 (*fide* James Coman).

YELLOW RAIL: The only report of this elusive winter resident was of three at the Samworth W.M.A., Georgetown County, SC, Dec. 29, as noted by Lex Glover.

BLACK RAIL: One was very rare and unusual away from the immediate coast at the Conway, SC, W.T.P. Jan. 15-16 (Gary Phillips and Lex Glover).

PURPLE GALLINULE: This species is very rare in North Carolina during winter, thus of interest was the wing salvaged at Alligator River N.W.R. in January (Jeff Lewis).

SANDHILL CRANE: Some of the most interesting reports of this annual visitor included four in the Mills River, Henderson County, NC, area Dec. 6-12 (Wayne Forsythe), from two to three in the Murrell's Inlet, SC, area Jan. 21-26

(Judy Walker *et al.*, Gary Phillips), and several on the Santee N.W.R., SC, CBC Dec. 30 (Lex Glover).

WILSON'S PLOVER: Five Wilson's on the Charleston, SC, CBC Dec. 24 (*fide* Ed Blitch III) provided the only report of this rare-in-winter species.

LONG-BILLED CURLEW: The six on the McClellanville, SC, CBC Dec. 16 (*fide* Perry Nugent) constituted an excellent total for this species in the Carolinas.

SPOTTED SANDPIPER: Spotted Sandpipers were widely reported this winter. The best total was the 10 on the Hilton Head Island, SC, CBC Dec. 16 (*fide* Joe Williams). Others included singles at Goldsboro, NC, Dec. 1 (Josh Rose and Frank Rheindt), at Myrtle Beach, SC, Dec. 11 (Jack Peachey), on the Morehead City, NC, CBC Dec. 17 (*fide* John Fussell), on the Santee N.W.R., SC, CBC Dec. 30 (Lex Glover), at Beaufort, NC, Jan. 27 (Simon Thompson), and along the Haw River just north of Jordan Lake, NC, Jan. 28 (John Terborgh).

SANDERLING: A very rare inland winter sighting was of one on the Columbia, SC, CBC Dec. 17 (*fide* Robin Carter).

STILT SANDPIPER: The only known wintering site for Stilt Sandpiper in the Carolinas is at the Savannah Spoil Site, SC. The peak count this year was 131 on Dec. 16, as noted by Steve Calver.

GREAT SKUA: The only report of this annual species was of three out of Hatteras, NC, Feb. 18 (Brian Patteson *et al.*).

LAUGHING GULL: Early returnees were 12 at the Jacksonville, NC, W.T.P. Jan. 31 (John Fussell). One in High Point, NC, Dec. 14 (Hop Hopkins) was very rare that far inland in winter.

LITTLE GULL: North Carolina had the only Little Gulls reported this winter. The best counts included four off Hatteras Feb. 18 (Patteson *et al.*), three at C. Hatteras point Feb. 4 (sev. obs.), and three at Atlantic Beach Feb. 22 (John Fussell). Others were singles at Pea Island N.W.R. Jan. 16 (Linda Ward and Skip Hancock), Rodanthe Jan. 21 (Eric Dean), and at Wrightsville Beach Feb. 4 (Sam Cooper); the latter providing a rare local sighting.

BLACK-HEADED GULL: The only one found this winter was at C. Hatteras, NC, Feb. 3-4 (Eric Dean *et al.*, sev. obs.).

CALIFORNIA GULL: Once again, this species was present in the C. Hatteras, NC, area with one there Dec. 27 (*fide* Harry LeGrand), two there Jan. 27 (Brad Carlson), and then one again Feb. 3-4 (Eric Dean *et al.*, sev. obs.).

THAYER'S GULL: At least three (maybe one or two more!) were found at C. Hatteras, NC, Feb. 17 (LeGrand *et al.*) providing a probable record one-day total.

ICELAND GULL: The only one reported this winter was an adult "Kumlien's" at C. Hatteras, NC, Feb. 17 (LeGrand *et al.*).

LESSER BLACK-BACKED GULL: Lessers are increasing as inland visitors each year. Of note in Wayne County, NC, were one Dec. 9 and four Dec. 16 (Eric Dean). One was at the Raleigh, NC, W.T.P. Dec. 21 (Brian Bockhahn) and a first-winter bird was at Roanoke Rapids Lake, NC, Jan. 28 (Ricky Davis).

Others included singles at Greenville, NC, Dec. 31 (*fide* John Wright), at New Bern, NC, Dec. 18 (*fide* Bob Holmes), and at the Jacksonville, NC, W.T.P. Jan. 31 (John Fussell). Other reports of note in North Carolina included three locally unusual birds at C. Lookout Jan. 27 (Fussell) and an impressive peak count of 65 in the C. Hatteras area Dec. 3 (Brian Patteson). In South Carolina, one was at Huntington Beach State Park Feb. 24 (*fide* Gary Phillips) and one was at Litchfield Beach Dec. 28 (Lex Glover).

GLAUCOUS GULL: The only one reported was a first-winter bird that hung out near C. Hatteras, NC, Point beginning Dec. 17 (Stephen Harris) for the whole winter.

GREAT BLACK-BACKED GULL: This species is also increasing inland each year. The best counts received included an impressive 48 on the Wayne County, NC, CBC Dec. 16 (*fide* Eric Dean) and eight on the Falls Lake, NC, CBC Dec. 30 (*fide* Brian Bockhahn).

"HYBRID" GULLS: Intensive gull watching at C. Hatteras, NC, Feb. 17 once again proved just how confusing the gull situation there can be. There were at least two Herring X Lesser types, one Herring X Glaucous, one Herring X Thayer's, and one Thayer's X Iceland type observed (LeGrand *et al.*). One has to really study these birds carefully when trying to find the rare one, and be prepared to accept the fact that some will not exactly fit the description of anything!

BLACK-LEGGED KITTIWAKE: Only one onshore report was had with a single bird at C. Hatteras, NC, Jan. 13 (Russ & Patricia Tyndall).

SANDWICH TERN: This species normally is gone from the Carolinas by December. Thus of note were three on the Hilton Head Island, SC, CBC Dec. 16 (*fide* Joe Williams) and two on the Morehead City, NC, CBC Dec. 17 (Mike Tove).

RAZORBILL: There was a major flight into North Carolina waters this winter, although not quite as big as the flight of 1994-95. The best counts included 300 Feb. 3 and 830 Feb. 18, both off Hatteras (Brian Patteson *et al.*). From shore, 20 were at C. Hatteras Feb. 18 (Russ & Patricia Tyndall), two were on the Bodie-Pea Islands CBC Dec. 28 (*fide* Paul Sykes), one was at Rodanthe Feb. 25 (Josh Rose), and one was at Ft. Fisher Dec. 31 (Ricky Davis).

ATLANTIC PUFFIN: North Carolina's fourth report involved an amazing count of 24 off of Hatteras Feb. 18 (Patteson *et al.*). Needless to say, this was the largest count of Puffins ever recorded this far south along the Atlantic coast.

WHITE-WINGED DOVE: Reports of this now annual species included one on the Bodie-Pea Islands, NC, CBC Dec. 28 (*fide* Paul Sykes) and one near Washington, NC, Jan. 26 (Jeff Lewis).

CHUCK-WILL'S-WIDOW: This is a rare wintering species in North Carolina with only a few records. Thus of note was one photographed at Buxton on the C. Hatteras, NC, CBC Dec. 27 (Paul Sykes *et al.*).

WHIP-POOR-WILL: This uncommon wintering species in southeastern North Carolina was found twice with singles on the Wilmington CBC Dec. 30 (*fide* Sam Cooper) and the Southport CBC Dec. 31 (Ricky Davis).

BLACK-CHINNED HUMMINGBIRD: This was a huge winter for Black-chinned Hummingbirds in the Carolinas, with five being banded by Susan Campbell. North Carolina Black-chinneds included an immature male at Sunset Beach from early December until at least Feb. 1 (Mary McDavit, m. obs.), a female at Goldsboro Dec. 2 until early January (*fide* Eric Dean), an immature female at Charlotte early December until January (Ray & Linda Munozs), and an immature male at Wilmington during January (*fide* Susan Campbell). In South Carolina, an immature male was at Myrtle Beach January until late February (*fide* Campbell). The four documented in North Carolina were more than that state previously had altogether and the South Carolina one was only the second documented in that state.

EMPIDONAX FLYCATCHERS: Rare *empidonax* flycatchers this winter included an *empidonax* sp. near Conway, SC, Dec. 8 (Gary Phillips), a calling Least Flycatcher at Buxton, NC, Dec. 29 (Brian Patteson), and a silent *empidonax* at Buxton Dec. 27 (Paul Sykes *et al.*) which was felt to be an Acadian Flycatcher. The latter bird, which would be extremely rare and unexpected, shows that silent empids in winter are very problematical, even when studied very closely and carefully.

VERMILION FLYCATCHER: The male Vermilion which showed up near Goldsboro, NC, during late November, was last seen Dec. 2, right before the big early snowfall the next day (*fide* Eric Dean).

WESTERN KINGBIRD: Always noteworthy in winter, Westerns found included one at Hemingway, Williamsburg County, SC, Dec. 29 (Lex Glover) and one at Ocracoke, NC, Jan. 28 (Kendrick Weeks *et al.*).

WHITE-EYED VIREO: Good winter reports for inland areas involved two on the Wayne County, NC, CBC Dec. 16 (*fide* Eric Dean) and one at Howell Woods, Johnston County, NC, in mid January (Jamie Sasser).

NORTHERN RAVEN: Away from the mountains, this species has been present in downtown Winston-Salem and Greensboro, NC, for some time now. Add to these a new Piedmont location; one in Davidson County halfway between Thomasville and Lexington, as noted Dec. 14 by Joe Poston. In Winston-Salem a nest with young was observed as early as Feb. 25 (Ramona Snavelly and Regina Burt). Other reports included two on the Greensboro CBC Dec. 16 (*fide* Dennis Burnette) and two on the Henderson County CBC Dec. 17 (*fide* Wayne Forsythe).

BARN SWALLOW: The only winter report was of one at the Savannah Spoil Site, SC, Jan. 4 (Steve Calver).

HOUSE WREN: One was locally rare and unusual in the mountains at Mills River, Henderson County, NC, Jan. 28 (Wayne Forsythe and Marilyn Westphal).

BLUE-GRAY GNATCATCHER: Higher than normal numbers were found away from the coastal plain this winter. Good counts of three each were had on the Durham, NC, CBC Dec. 17 (*fide* Mike Schultz) and the Chapel Hill, NC, CBC Dec. 24 (*fide* Will Cook). Also one was on the Raleigh, NC, CBC Dec. 16 (Dan Kaplan).

GRAY CATBIRD: Excellent for winter were the five on the Raven Rock State Park, NC, CBC Dec. 16 (*fide* Paul Hart).

ORANGE-CROWNED WARBLER: This species is rarely found in the piedmont during winter, thus of note were singles on the Chapel Hill, NC, CBC Dec. 24 (Doug Shadwick) and the Jordan Lake, NC, CBC Dec. 31 (*fide* Norm Budnitz).

NASHVILLE WARBLER: This rare but regular wintering warbler was found once with an individual near Conway, SC, Dec. 21 (Gary Phillips).

NORTHERN PARULA: Very rare in winter on the Outer Banks, one was at Roanoke Island Dec. 12 & 18 (Jeff Lewis); and an amazing count of three birds was had on the C. Hatteras CBC Dec. 27 (*fide* Harry LeGrand).

MAGNOLIA WARBLER: Extremely rare was the Magnolia found at Savannah N.W.R., SC, Jan. 20 (Mike Chapman *et al.*). Winter reports of this warbler for the Carolinas are almost nonexistent.

CAPE MAY WARBLER: This species is reported somewhere in the Carolinas almost every winter. This season's was at a feeder at Howell Woods, Johnston County, NC, Feb. 28, as noted by Jamie Sasser and Melissa Miller.

BLACK-THROATED BLUE WARBLER: One of our rarer winter warblers, the Black-throated Blue was located an amazing four times. One wintered at Durham, NC, Dec. 2 until at least Jan. 30 (Owen McConnell); one was present in Hillsborough, NC, for several days in late January until found dead on the 31st (Randy Dunston); one was on the Hilton Head Island, SC, CBC Dec. 16 (*fide* Joe Williams); and one was at Brookgreen Gardens, SC, Feb. 23 (*fide* Gary Phillips).

YELLOW-THROATED WARBLER: Locally good winter finds were singles on the C. Hatteras, NC, CBC Dec. 27 (John Fussell) and the Ocracoke, NC, CBC Dec. 30 (Jeff Beane *et al.*).

BLACK-AND-WHITE WARBLER: This warbler was widely reported across the Carolinas this winter. The best totals included an impressive 11 on the Hilton Head Island, SC, CBC Dec. 16 (*fide* Joe Williams) and six on the Lake Mattamuskeet, NC, CBC Dec. 29 (*fide* Allen Bryan). Harder to find further inland, one at Charlotte, NC, Dec. 30 (*fide* Wayne Covington) was noteworthy.

AMERICAN REDSTART: This species is very rarely found in winter, thus of note were two on the Hilton Head Island, SC, CBC Dec. 16 (*fide* Joe Williams) and one at Charlestowne Landing, Charleston County, SC, Feb. 6 (Dennis Forsythe *et al.*).

NORTHERN WATERTHRUSH: Always noteworthy in winter, one was at the Savannah Spoil Site, SC, Jan. 4, as noted by Steve Calver.

WILSON'S WARBLER: This species normally is found once or twice somewhere in the Carolinas each winter. This season was exceptional throughout the southeast. There were at least four reports this year with two at Savannah N.W.R., SC, Dec. 4 (Lex Glover, Giff Beaton *et al.*), one in Franklin County, NC, Nov. 30 & Dec. 18 (Sharon Funderburk), one on the Durham, NC, CBC Dec. 17 (Mike & Lois Schultz), and one at Conway, SC, Dec. 21 (Gary Phillips).

YELLOW-BREASTED CHAT: This species was also found more than usual with reports including two on the Bodie-Pea Islands, NC, CBC Dec. 28 (*fide* Paul Sykes), one at L. Mattamuskeet, NC, Dec. 29 (*fide* Allen Bryan) and Feb. 24 (Jamie Sasser *et al.*), one at Howell Woods, NC, Feb. 13 & 23 (Jamie Sasser), one on the Southport, NC, CBC Dec. 31 (Ricky Davis, John Fussell, Jim O'Donnell), and one on the ACE Basin, SC, CBC Dec. 31 (*fide* Pete Laurie).

SUMMER TANAGER: A very rare and unusual winter report of Summer Tanager was provided by a female at a feeder in N. Myrtle Beach, SC, Jan. 5 & 21 (Craig Smith, Rick Murray). The observers did rule out the more expected Western Tanager the couple of days it was seen.

WESTERN TANAGER: This species is practically annual as a winter visitor. This year's reports included one at Fayetteville, NC, Jan. 1 (Bob Perkins), one at Washington, NC, in early February (*fide* Taylor Piephoff), and one at Straits, Carteret County, NC, Jan. 15-27 (Don & Carolyn Hoss, Susan Campbell).

CLAY-COLORED SPARROW: Two reports of this rare wintering sparrow included one in Wayne County, NC, Dec. 5 (George Armistead and Marshall Iliff) and one on the Southern Lake Norman, NC, CBC Dec. 17 (*fide* Taylor Piephoff).

LARK SPARROW: Always a good find in the winter, Lark Sparrow reports involved one at a feeder in Gloucester, Carteret County, NC, Jan. 20 (Jack Fennell, Libby Liles, John Fussell) and one east of Rocky Mount, NC, Feb. 11 (Ricky Davis).

GRASSHOPPER SPARROW: Noteworthy reports included up to three at the Samworth W.M.A., SC, Dec. 13 (Jack Peachey *et al.*) until at least Jan. 1 (Tim Kalbach) and eleven different birds at Alligator River N.W.R., NC, Feb. 8-9 (Jeff Lewis). The latter count is easily a record winter count for this species.

HENSLOW'S SPARROW: This elusive sparrow was found at several places this winter. Up to three were at the Samworth W.M.A., SC, until at least Jan. 20 (Lex Glover *et al.*), one was in Berkeley County, SC, Jan. 29 (Dennis Forsythe), and an impressive count of seven different individuals was had at the Savannah River Site, SC, Jan. 6-8 (Paul Champlin).

LeCONTE'S SPARROW: LeConte's Sparrows continued to be reported widely. The best counts included an amazing total of 19 at the Savannah Spoil Site, SC, Dec. 16 & Jan. 4 (Steve Calver), up to ten at the Samworth W.M.A., SC, during late December until at least Jan. 20 (Lex Glover *et al.*, Chris Hill, Tim Kalbach), up to five at the Savannah River Site, SC, as late as Jan. 23 (Glover, Paul Champlin *et al.*), and three in Pamlico County, NC, Dec. 19 (*fide* Liz Lathrop). Others of note involved one at Vulture, Northampton County, NC, Jan. 28 until the end of the season (Ricky Davis), one at Cowan's Ford Refuge, NC, Feb. 10 (Stephen Harris), two at Sandhills N.W.R., SC, Feb. 18 (Glover), and one at Huntington Beach State Park, SC, Jan. 26 (Gary Phillips).

LINCOLN'S SPARROW: Reports were numerous this winter and the best count received was six at Alligator River N.W.R., NC, Jan. 16-17 (Jeff Lewis). Others of note included one on the Charlotte, NC, CBC Dec. 30 (*fide* Wayne

Covington), one on the L. Mattamuskeet N.W.R., NC, Dec. 29 (*vide* Allen Bryan), one at Bird Shoal, Beaufort, NC, Dec. 21 (John Fussell), one near Darlington, Halifax County, NC, Feb. 11 (Ricky Davis), one at Pee Dee N.W.R., NC, Dec. 16 (*vide* Laura Fogo), and one at the Samworth W.M.A., SC, Jan. 1 (Tim Kalbach) until at least Feb. 2 (Jack Peachey and Bob Maxwell).

DARK-EYED "OREGON" JUNCO: This rare western form was located twice with one in Lexington County, SC, Feb. 4-11 (Molly Bonnell and Andrea Ceselski) and one near Rosman, Transylvania County, NC, from late February until early March (*vide* Norma Siebenheller).

LAPLAND LONGSPUR: The only winter reports of this species involved individuals on the Greenville, NC, CBC Dec. 31 (*vide* John Wright) and the L. Wateree, SC, CBC Jan. 5 (*vide* Donna Bailey).

BLUE GROSBEAK: Extremely rare in winter, one was found near the Samworth W.M.A. on the Litchfield-Pawley's Island, SC, CBC Dec. 28 (Chris Hill, *vide* Jack Peachey).

PAINTED BUNTING: The only ones reported this winter came from the usual wintering sites in Carteret County and on the Outer Banks. The best counts were three at a feeder in Morehead City during December (John Fussell) and two at Buxton on the C. Hatteras CBC Dec. 27 (*vide* Harry LeGrand). One was also a good find to the north on the Bodie-Pea Islands CBC Dec. 28 (Allen Bryan *et al.*).

DICKCISSEL: Rare and noteworthy in winter, singles were found at Buxton, NC, Dec. 27 (Paul Sykes *et al.*) and Jan. 14 (Pat & Neal Moore), and at Conway, SC, Jan. 18 (Gary Phillips). Also the one from the fall season in Transylvania County, NC, was last seen Dec. 14 (Betty McIlwain).

BREWER'S BLACKBIRD: This species is quite local in its occurrence in the Carolinas. In North Carolina the only usual spot is the large farm in Carteret County, and there were at least nine there during late January (Jack Fennell, John Fussell, sev. obs.). In South Carolina, 40 were on the Columbia CBC Dec. 17 (*vide* Robin Carter), and an impressive flock of 200 was found near Bowman, Orangeburg County Dec. 9 (Lex Glover).

RED CROSSBILL: The count of 102 on the Stone Mountain, NC, CBC Dec. 30 (*vide* John MacConnell) was truly amazing; and the only crossbill outside of the mountains was a one-day wonder at a feeder in Chapel Hill, NC, Jan. 31 (Doug Shadwick).

EVENING GROSBEAK: Grosbeaks were practically non-existent in the Carolinas this winter. One wonders if the six found on the Jordan Lake, NC, CBC Dec. 31 (*vide* Norm Budnitz) were completely lost!

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Articles

A 20-year Record of Migratory Bird Movements in the Black River Swamp of South Carolina. *Thomas B. Mowbray, Lex Glover, Abby Whitaker, Noora Singh* 123

Overlooked Bird Reports from South Carolina in the 16th Century.
David W. Johnston 137

General Field Notes

Scarlet Ibis Found Breeding in South Carolina. *David Chamberlain* 142

Briefs for the Files, Spring 2001

146

Index to Vol. 65

157

Cover (White-breasted Nuthatches) by Bill Duyck, Asheville, NC

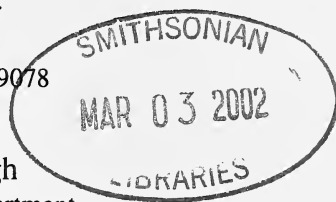
A 20-year Record of Migratory Bird Movements in the Black River Swamp of South Carolina

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Introduction

For over 26 years Evelyn Dabbs has operated a bird banding station at her home on the Black River Swamp, 12 miles east of Sumter, South Carolina. Dabbs and others have banded birds continuously at the site on the eastern edge of the swamp just north of U.S. Highway 378 since 1976. The effort started modestly, out of an interest in merely documenting the local avian fauna near her home and establishing a record of the migrant species using the Black River corridor, but it soon expanded into a major project that included the education of school children and local residents about the biology of birds and the importance of preserving habitat to maintain bird diversity.

While carrying out Evelyn's pet objective of education, the banders were collecting a great deal of valuable data on the composition and dynamics of the local avian community and on migratory movements of birds through this part of the South Carolina Low Country. This paper summarizes the nearly 14,000 banding records reported at the Black River Swamp from 1980-2000. Emphasis is on the phenology and species composition of the spring (March – May) and fall (August – November) migration along the Black River corridor and, albeit briefly, the species composition and population dynamics of the summer and winter birds at the site. The fall and spring migratory data represent the 20-year banding records of Dabbs, Glover, and Mowbray. All records included in the report are a part of the permanent data base for the Black River Swamp site at the USFWS Migratory Bird Banding Laboratory in Laurel, Maryland. All species are listed in the order of the American Ornithologists' Union Check-list of North American Birds (Am. Ornithol. Union 1998), and names follow the Identification Guide to North American Birds (Pyle 1997).

Study Area and Methods.

The approximately 1 km long study site is on a slight bluff overlooking the eastern portion of the Black River Swamp. The eastern portion of the site

consists of flat, agricultural fields dissected by a network of tree-dominated hedgerows and shrubby drainage ditches. The portion of the study site directly adjacent to the river has mature upland hardwood forest on the well-drained areas and mature bottomland hardwood forest on the floodplain. The upland forest forms a narrow band, 100 to 200 m in width, extending parallel with the river. The elevational drop from the top of the bluff to the floodplain averages 5-10 m. The bottomland hardwood forest represents the dominant forest of the entire Black River floodplain and is more than 3 km wide at the study site.

The mist nets at the banding site were located on the slopes of the bluff in the upland forest and in an adjacent east-west oriented hedgerow. Nets were sometimes also set up in hedgerows and shrubby drainage areas to the east, in the cultivated fields. The mist nets used at the site were standard 2.1 x 13 m and 2.1 x 9 m, 4-tier, 30 mm mesh nets. All were placed within mature forest or hedgerows in narrowly cleared lanes 1-1.5 m in width. During the period reported in this study, 6 to 24 nets operated at any one time, and the nets were open each banding date from 2-10 hours. The days of operation varied, but over the 20-year period the operation adequately spanned the entire spring and fall migrations. The daily banding records have been consolidated, for space and convenience of reporting, into five, 6-day (or in a few cases 7-day) periods per month. The number of birds reported for each period represents all the birds captured during those days throughout the entire 20 years of data collection but does not represent a consistent banding effort. Some dates represent significantly more or less banding effort than others, thus making the use of this data inappropriate as a basis either for direct comparisons with other banding stations, or for descriptions of temporal changes in the occurrence or absolute abundance of species at this banding station. The importance of this data to the ornithological literature is in its documentation of the diversity of the avian species that occur in this part of the South Carolina Low Country during spring and fall migration, the relative abundance of the different species during these periods, and the long-term phenological record of their occurrence.

During the period 1980-2000, three intensive studies were conducted during the fall migration (August - November). In the fall of 1991, Glover banded daily. Glover and Dabbs banded several days each week throughout the entire fall of 1990 (Glover and Dabbs 1991). In 1999 Mowbray banded several days each week throughout the fall. The data collected during these more intensive studies is included in this report.

Results

During the 20 years of banding at the Black River Swamp reported in this paper, nearly 14,000 individual birds representing 105 different species were banded. The 105 species include birds considered permanent residents, summer residents, winter visitors, and spring and fall transients, based on the date(s) of their occurrence and the length of stay at the site. Although the banding data for the summer months of June and July and winter months of December, January,

and February are not included here, they are available and can be inferred from the discussion of the breeding and wintering birds here.

Permanent, Summer (Breeding) and Wintering Bird Communities. The species composition of the summer and winter bird communities at the Black River Swamp consists of a mix of permanent residents and migrants and is typical of the bird communities found during these seasons throughout much of the South Carolina Coastal Plain (Post and Gauthreaux 1989). Common permanent residents at the site include Northern Cardinal, Tufted Titmouse, Carolina Wren, Carolina Chickadee, Red-bellied and Downy Woodpeckers, Eastern Bluebird, Chipping and Field Sparrows, Blue Jay, Brown Thrasher, Mourning Dove, and Loggerhead Shrike (Tables 1, 2 and 3). During the summer several species of migrants join the permanent residents to form a typical breeding bird community consisting of over 50 species. Neotropical migrants that breed in the area, along with the permanent residents, include Yellow-billed Cuckoo, Acadian and Great Crested Flycatchers, Eastern Wood-Pewee, Wood Thrush, Gray Catbird, Red-eyed and White-eyed Vireos, Northern Parula, Prothonotary, Yellow-throated, Prairie, Kentucky, and Hooded Warblers, Louisiana Waterthrush, Summer Tanager, Blue Grosbeak, Indigo and Painted Buntings, and Orchard Oriole. The wintering community, although more dynamic as a result of the sporadic appearance of winter irruptives, is both rich in species and high in individual species abundance. Common migrants that winter at the site include Yellow-bellied Sapsucker, House Wren, Ruby-crowned and Golden-crowned Kinglets, Hermit Thrush, Yellow-rumped and Orange-crowned Warblers, Savannah, Song, Swamp, and White-throated Sparrows, and Dark-eyed Junco. Occasionally these species are joined by large numbers (25-50) of Fox and White-crowned Sparrows, and during cold northern winters when seeds in arctic and boreal regions are scarce a variety of irruptives including Purple Finch, Pine Siskin, and Evening Grosbeak occur at the site and add diversity to the late-winter bird community (Wootton 1996, Dawson 1997, Adkisson 1999).

Fall Migration. Fall migration on the Black River Swamp extends from August - November, with continuous activity throughout the entire 4-month period. Table 1. During fall migration most species have fairly protracted periods of migration, with different aged individuals and sexes migrating at different times. Often adults, presumably failed breeders and nonbreeders, disperse southward before successful breeders and immatures (Rimmer and McFarland 1998, Rising and Flood 1998, Mowbray 1999). This is reflected in the peak of activity, which is also protracted, often extending over a full two-week period. Species diversity (species richness; Krebs 2001) of the migrants is slightly greater in fall than spring, with as many as 100 species in fall and generally fewer than 90 in spring.

In fall, migration begins the first week of August, with increased movement by several species of summer residents. Generally the first species

to begin major migratory activity in the area is Prothonotary Warbler. By the second week of August migration is well under way, with Prothonotary Warbler being joined by several other summer residents, including Yellow-throated and Hooded Warblers, Northern Parula, Summer Tanager, Acadian Flycatcher, and Orchard Oriole. Activity continues to build through August and early September with the addition of more summer residents, including Great Crested Flycatcher, Swainson's Warbler, Wood Thrush, Blue Grosbeak, and Indigo Bunting, and the first appearance of transients, such as Black-and-White Warbler, Worm-eating Warbler, American Redstart and Ovenbird. By mid-September migration is in full-swing, with the continued addition of more transient species, including Veery, Yellow Warbler, Northern Waterthrush, and Scarlet Tanager. Peak migration occurs between September 25 and October 3, when as many as 45 species of migratory birds are regularly recorded. Species commonly banded then include Eastern Wood-Pewee, Veery, Gray-cheeked, Swainson's and Wood Thrushes, Gray Catbird, White-eyed, Red-eyed and Yellow-throated Vireos, Scarlet and Summer Tanagers, Rose-breasted and Blue Grosbeaks, Indigo Bunting, and up to 28 species of warbler. Migration begins to taper off after the first week of October, and the few late migrants (such as the Magnolia Warbler, Black-throated Blue Warbler, and Palm Warbler) begin to decline in numbers. The end of fall migration is marked by the arrival of the first of the winter visitors, Eastern Phoebe and Ruby-crowned Kinglet, and by late October the residents of the Black River Swamp winter bird community begin to arrive in force. This late burst of activity includes White-throated, Chipping and Song Sparrows, Dark-eyed Junco, Yellow-rumped Warbler, Hermit Thrush, and Yellow-bellied Sapsucker.

Several species occur at the site during fall migration that do not during spring migration. These species, which appear to follow a more easterly fall migratory route, include Least Flycatcher, Yellow-bellied Flycatcher, Winter Wren, Philadelphia Vireo, Golden-winged, Canada, Bay-breasted, Blackburnian, Tennessee, Nashville, Connecticut, Mourning, and Chestnut-sided Warblers, and Scarlet Tanager (Rimmer and McFarland 1998, Mowbray 1997, 1999). Several species that pass through the area in both spring and fall appear to be slightly more numerous during fall migration than spring migration, including Blue-winged and Magnolia Warblers. Because of the unequal amount of banding time however, these differences might not be statistically significant.

Spring Migration. Spring migration extends from March – May on the Black River Swamp. Table 2. The overall length of the migratory period is somewhat shorter for most species in spring than in fall, and the peak of activity is also compressed into a shorter period of time (often less than a week). Diversity (species richness) is slightly lower in spring than fall, as several transient species that regularly move through the area in the fall are absent during spring migration.

It is difficult to establish when spring migration begins, as the routine daily movements of the winter visitors are difficult to distinguish from migratory

movements. By early March, however, migration appears to begin with the departure of several species of winter visitors and occasional winter irruptives, including Dark-eyed Junco, American Robin, Song Sparrow, Eastern Phoebe, Purple Finch, Pine Siskin, and Evening Grosbeak. By mid-March several other species begin their departure, and migration is definitively underway. This second wave of departures includes Chipping and White-throated Sparrows, Ruby-crowned Kinglet, and Yellow-rumped Warbler. Migratory activity remains confined primarily to the departure of the winter visitors and irruptives until nearly mid-April and the appearance of the first few species of summer residents and northern transients. The first of these to arrive in the area include Blue-gray Gnatcatcher, Northern Parula, and White-eyed Vireo, but they are closely followed by Prothonotary Warbler, Yellow-throated Warbler, Hooded Warbler, and Red-eyed Vireo. By the third week in April activity rapidly picks up, as more transients begin to appear. By the last week of April peak migration occurs, with as many as 40 species of migrants regularly being recorded. Species routinely banded during this one-week period include Acadian and Great Crested Flycatchers, Veery, Swainson's and Wood Thrushes, Gray Catbird, White-eyed, Red-eyed and Yellow-throated Vireos, Summer Tanager, Rose-breasted and Blue Grosbeaks, Indigo Bunting, Orchard and Northern Orioles, as many as 15 species of warbler, and the last of the departing Chipping and White-throated Sparrows. Spring migration tapers off gradually through May as the final numbers and composition of the summer community becomes established. The activity of birds during this period wanes significantly and does not pick up again until the first migrants begin to move about in late July and early August.

Species Recapture. During the 20-year period of 1980-2000, 381 individuals of 44 species were recaptured at the site, most of these being either permanent residents, breeders, or wintering birds. Few transients were recaptured (Table 3). Most recaptures were of permanent resident and neotropical migrants that breed at the site, including Tufted Titmouse, Carolina Wren, Northern Cardinal, Downy Woodpecker, Carolina Chickadee, Great Crested and Acadian Flycatcher, Orchard Oriole, Prothonotary Warbler, and Wood Thrush. The only wintering species consistently recaptured at the site was White-throated Sparrow.

For migratory species recapture data can be used to establish fidelity of individuals to specific sites. The recapture data for the Black River Swamp suggests that several species of summer residents have a high degree of fidelity to the site and return annually after their initial banding. Species showing a high degree of fidelity include Great Crested Flycatcher, Indigo Bunting, Prothonotary Warbler, and Wood Thrush (all returning annually for up to 4 years). White-throated Sparrow also returns regularly to the Black River Swamp. Recapture data, when gathered over a long period of time, can also be useful in establishing species longevity. In this study several records may be significant in helping to determine the longevity of certain species. Of

particular significance in this regard is the recapture of a Prothonotary Warbler eleven years after its initial banding, a remarkable record for this long-distance migrant. Average life span for this species is 2.44 yr, with a minimum longevity of 4 yr 11 mo, and a previous record longevity for a banded female 8 yr (Petit 1999). Other records of interest include Blue Jay (11 years), Tufted Titmouse (10 years), and the Great Crested Flycatcher (7 years). The 7-year longevity of Great Crested Flycatcher is another example of a fairly long life span for a species that annually migrates from South Carolina to Middle America (Am. Ornithol. Union 1998).

Although recapture data can also be used to determine annual survival rates, no conclusions regarding survival can be drawn from our data, as banding effort over the years was inconsistent.

A Special Note

During the 20-year period of 1980-2000, Dabbs gave banding demonstrations and presentations to 270 groups of school-aged children and 70 groups of adults (6,366 individuals) from throughout South Carolina. In addition to the banding demonstrations and presentations, Dabbs and her family made their facilities available for extended periods of time (1-2 full days) for Audubon groups and college and university classes. During the period 42 Audubon groups and 14 university classes from North and South Carolina (a total of 1,678 individuals) visited the site for one- to two-day field experiences. Thus, over the 20-year period a total of 8,044 individuals enjoyed the Black River Swamp while being treated to a bird banding demonstration and presentation on the biology of birds. From all of us who have had the opportunity to participate in one or more of these special visits, a hearty expression of our thanks and appreciation to Evelyn and her husband (Tommy), their entire family, and the lengthy list of volunteers who over the years have given so freely of their time.

Instructions for Authors

www.carolinabirdclub.org/thechat.html



Evelyn Dabbs continues to band birds at her home on the Black River Swamp after more than 25 years. Photo by Bob Wood.

[illegible]

Table 2. Spring Migration. All birds banded at the Black River Swamp from 1980-2000, during the months of March-May. Daily banding records for each month consolidated into 5, 6-day periods.

Species	March					April					May				
	1-5	7-12	13-18	19-24	25-31	1-5	7-12	13-18	19-24	25-30	1-5	7-12	13-18	19-24	25-31
Mourning Dove	1								1						
Yellow-billed Cuckoo								2		5	1	6	4	2	
Red-bellied Woodpecker				2											
Yellow-bellied Sapsucker	1			1	2			2	3	3	10	7	5	4	1
Downy Woodpecker			1	2											
Hairy Woodpecker			1												
Northern Flicker				2	1	2									
Eastern Wood Peewee									1			2	1		
Yellow-bellied Flycatcher													2		
Acadian Flycatcher									2	16	32	20	29	8	3
Least Flycatcher															
Eastern Kingbird															
Eastern Phoebe	2		1	3				1	2	8	24	5	17	6	5
Great Crested Flycatcher															
Loggerhead Shrike							2			4	3	1	6	2	
White-eyed Vireo					1										
Blue-headed (Solitary) Vireo															
Yellow-throated Vireo					1					2	4		3	1	
Philadelphia Vireo															
Red-eyed Vireo							2	16	9	18	41	17	17	21	2
Blue Jay	1						1	3					1		1
Carolina Chickadee	3	3	2	3	2	1	4	1	3	2	1	5	3	3	1
Tufted Titmouse	12	6	20	3	1		2	1	5	8	5	4	8	7	6
White-breasted Nuthatch	1	2	1						4	1	4	2	2	2	
Carolina Wren		1		2	2	2	4	1	8	6	3	7	6	6	1
House Wren															
Winter Wren									1						
Golden-crowned Kinglet					2										
Ruby-crowned Kinglet	3	1	9	8	14	4	1	2	1						
Blue-gray Gnatcatcher			1		5	1	2	2				2	1		
Eastern Bluebird	1					1						1	1		8
Veery									5	30	19	8	3		2
Gray-cheeked Thrush												1	1		
Swainson's Thrush									2	6	7	5		1	
Hermit Thrush															
Wood Thrush					3					1					
American Robin	4	5	3	9	1	5		13	23	28	30	19	17	22	7
Gray Catbird												3			
Northern Mockingbird				4	1			5	27	25	34	12	1	2	
Brown Thrasher			1	2			3	4	1	11	1	6	3	7	
Cedar Waxwing								14	1	1					
Blue-winged Warbler												3	1		
Golden-winged Warbler															
Tennessee Warbler															
Orange-crowned Warbler															
Nashville Warbler															
Northern Parula															
Yellow Warbler	1		2	2	2	4	4	4	9	13	15	6	11	1	1
Chestnut-sided Warbler									2	2					

Species	March					April					May				
	1-5	7-12	13-18	19-24	25-31	1-5	7-12	13-18	19-24	25-31	1-5	7-12	13-18	19-24	25-31
Magnolia Warbler											1	1			
Cape May Warbler											1	1			
Black-throated Blue Warbler											25	45	22	10	4
Yellow-rumped Warbler	3	3	2	47	4	12	6	60	13	16	2				1
Blackburnian Warbler															
Yellow-throated Warbler			1			1	2	3	4	2	3	5	8	1	
Pine Warbler								1		1					
Prairie Warbler													1		
Palm Warbler				2			1		8	1					
Bay-breasted Warbler															
Blackpoll Warbler									1		4		5		
Cerulean Warbler															
Black-and-white Warbler						1		2	5	14	12	2	3		3
American Redstart									1	3	5	3	2	2	1
Prothonotary Warbler							3	7	23	15	16	23	37	14	11
Worm-eating Warbler									3	13	6	8	1		
Swainson's Warbler															
Ovenbird					1	2		4	24	39	72	18	17		
Northern Waterthrush					1			2	14	18	23	16	10	3	1
Louisiana Waterthrush					1			1	4	5	4		8		1
Kentucky Warbler									4	3	4	2	1		
Connecticut Warbler															
Mourning Warbler															
Common Yellowthroat						3	2	4	15	7	41	15	3	1	
Hooded Warbler											7	7	7	3	1
Canada Warbler															
Yellow-breasted Chat											2	1			
Eastern Towhee					1	3		1	1		1	1		1	
Summer Tanager									3	3	11	7	10	9	3
Scarlet Tanager															
Chipping Sparrow	14	14	33	46	15	53	18	8	10	3					
Field Sparrow	3		6	12	1	3	1	3	2						
Savannah Sparrow						1									
Fox Sparrow	1														
Song Sparrow	3	4	1	8		1									
Lincoln Sparrow															
Swamp Sparrow											1				
White-throated Sparrow	5	31	27	32	18	71	34	41	94	33	19	2			
Dark-eyed Junco	21	6	7	31	1	3		1							
Northern Cardinal		10	4	51	6	17	11	24	19	16	17	11	10	8	
Rose-breasted Grosbeak															
Blue Grosbeak											1	3	4		
Indigo Bunting								7	27	22	11	8	3	1	
Painted Bunting							1	21	47	58	82	34	39	11	5
Orchard Oriole											1	2			
Northern (Baltimore) Oriole						1			10	19	21	3	6	1	2
Purple Finch	16	28	19	64	18	15		2	2						
Pine Siskin	6	18	7	3	9	4	2	11	1	1					
American Goldfinch	53	38	72	54	14	172	16	105	49	26	10	2			
Evening Grosbeak		2	9	6	16	2	8	12	3						

Species	Years after initial banding										
	1	2	3	4	5	6	7	8	9	10	11
Brown Thrasher	2	1		2	2						
Northern Parula	2	1				1					
Yellow-throated Warbler				1							
Prothonotary Warbler	18	6	1	1		3					1
Ovenbird	1										
Northern Waterthrush			1								
Hooded Warbler	2										
Summer Tanager	3	1	1		1						
Eastern Towhee	1	1									
Chipping Sparrow	1										
Field Sparrow		1									
Fox Sparrow	2										
Song Sparrow	5	1									
Swamp Sparrow	2										
White-throated Sparrow	21	11	9	7	1						
Dark-eyed Junco	3	2									
Northern Cardinal	16	8	10	2	6	2	2		1		
Blue Grosbeak	2		1								
Indigo Bunting	1	2	2	1							
Orchard Oriole	9	1	3								
American Goldfinch		5	1					1			
Totals	166	90	60	27	16	10	5	1	1	3	2

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Overlooked Bird Reports from South Carolina in the 16th Century

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Heretofore, the earliest recognized bird report from South Carolina has been the account of William Hilton's exploration in 1663 (Wayne 1910; Sprunt and Chamberlain 1949). Along the coast from Port Royal to the Edisto River, Hilton wrote: "The Country abounds with Grapes, large Figs, and Peaches; the Woods with Deer, Conies, Turkeys, Quails, Curlues, Plovers, Teile, Herons; and as the Indians say, in Winter, with Swans, Geese, Cranes, Duck and Mallard, and innumerable of other water-Fowls, whose names we know not, which lie in the Rivers, Marshes, and on the Sands...." (Hilton 1664:8). In the same account he reported "...Deer and Turkies every where; we never going on shoar, but saw of each also Partridges great store, Cranes abundance.... Also in the River we saw great store of Ducks, Teile, VVidgeon, and in the woods great flocks of Parrakeeto's...." (Hilton 1664:10). Also "...we kill'd of wild-fowl, four Swans, ten Geese, twenty nine Cranes, ten Turkies, forty Duck and Mallard, three dozen Parrakeeto's, and six or seven dozen of other small Fowls, as Curlues and Plovers, &c." (Hilton 1664:15).

Although Hilton's bird names are mostly too general for precise identification, the Turkies must have been *Meleagris gallopavo*, the Quails and Partridges, Northern Bobwhites (*Colinus virginianus*), the Mallard, *Anas platyrhynchos*, and the Parrakeeto's, the Carolina Parakeet (*Conuropsis carolinensis*). The reported abundance of birds, especially the waterfowl in winter and shorebirds, in South Carolina in the 17th century is similar to reports from Virginia at the same time (David W. Johnston, unpubl. data).

A century before Hilton's journey, a French expedition led by Captain Jean Ribaut (also known as Ribault or Ribauld) landed in May 1562 at the River of May (St. John's River) in northeastern Florida (Ribauld 1563). From there he made an excursion northward along the coast to present-day South Carolina arriving at Portus Regalis (Port Royal) on 17 May 1562 (Connor 1927). At least two versions of the excursion are known. Thomas Hacket (in Connor 1927) translated the original French version into English, which translation included observations from the Port Royal area: "Also an innumerable sorte of wylde foule of all sorts, & in litle Islandes at the entrye of this hauen on the East Northest syde, there is so great number of Egreps that the bushes be all whyte & couered with them, so that one may take of the yonge ones with his hand as many as he wyll carye away. There be also a number of other foules, as Hernes, Bitters, Curlues, And to be short, there is so many small byrdes that it is a straunge thyng to be sene." A similar but slightly different version has been found in the British Museum, wherein Ribaut wrote about

"...guinea foule and innumerable wildfoule of all sortes, and in a lyttell ilande at the entrye of this haven, on the est northerest side, there is so great numbre of egretes that the bushes be all white and covered with them, so that one may take of the yong ones with his hande as many as he will carry awaye. There be also a nombre of other foule, as herons, bytters, curleux, and to be shorte, so many smale birdes that yt is a straung thing to be sene" (Connor 1927:92). The addition of "guinea fowle" must have referred to the Wild Turkey.

René Laudonnière paraphrased Ribaut's account of this venture to Port Royal in 1562 by adding: "Advancing through these woods, we saw turkeys flying everywhere and grey and red partridges [probably the Northern Bobwhite], differing from ours mainly in size. We also heard deer and saw bears, lynxes, leopards..." (Lawson 1992:23).

As with bird reports of other early North American explorers, most of the names are too general for specific identification. "Bytters" might have referred to the American Bittern (*Botaurus lentiginosus*), "egretes" might have been any of several species, and "curleux" are unidentifiable. Even so, Ribaut's description of the bird life, as well as that of animals and plants, provides an early picture of natural history in coastal South Carolina.

After constructing Charlesfort at Port Royal, Ribaut left men to guard it, then departed for France on 11 June. Ultimately Charlesfort was destroyed by the Spanish.

A second French expedition to "New France" (*i.e.*, northeast Florida) took place in 1564, this one under the leadership of René Laudonnière. Accompanying him was Jacques Le Moyne De Morgues (1530?-1588), a special painter and mathematician. His duties were "to make an accurate description and map of the country and drawings of all curious objects." He accompanied Laudonnière on his exploring trips up the St. John's River from Fort Caroline at the river's mouth, thereby giving him impressions of Indian life styles and wildlife. One of the French commanders, Le Vasseur, sailed northward to the Port Royal region, and Le Moyne reportedly accompanied him. Soon thereafter the Spanish attacked the French at Fort Caroline and killed most of its inhabitants, including Jean Ribaut, who had returned to Florida in 1565. Le Moyne and Laudonnière managed to escape and sailed to England in 1565.

Exactly where and when Le Moyne completed 42 paintings of the Florida and South Carolina travels is unclear. Theodore de Bry purchased Le Moyne's drawings in London and published them in 1591 (Bry 1591). These drawings have been reproduced several times (Lorant 1946; Allen 1951; Hulton 1977b), most of them dealing with scenes of Indian life, Fort Caroline, and travels along the St. John's River. Only one of the originals has survived: "Life at Fort Caroline." Among the 42 illustrations published by de Bry is one entitled, "The French Reach Port Royal," and in it three French vessels are depicted entering the islands of Port Royal Sound (Fig. 1). The caption in Hulton (1977a:140) contains the statement: "On penetrating these [islands and forests] they could see turkeys or peacocks flying past and deer ranging through the forest." Four

the wilderness of South Carolina...." (Allen 1951:440); the description of the Le Vasseur/Le Moyne trip to Port Royal in Lawson (1993:92) strongly suggests only a brief visit of a few days. And on page 441 Allen unfortunately labelled Le Moyne's drawing of "The French Reach Port Royal" as "Life at Fort Caroline."

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Birds of the Carolinas Student Research Grants Program

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Scarlet Ibis in faded plumage (Post and Gauthreaux, 1989; Belser, 1989). None of these birds was found nesting.

The ibis found at Buckfield Plantation backwater was a dark, vivid pink, Smithe color 13 – geranium pink with black wing tips (Smithe, 1975). This color is but one hue off of scarlet (color 14). The feet, legs, lores, and orbital area of this bird were bright scarlet. The color of the soft parts of this bird was much deeper than those of the white ibis nesting nearby. The bill was dark brown grading into pink near its base. The iris was blue.

The identification of this bird is complicated by the question of whether it is a Scarlet x White Ibis hybrid or whether it is a Scarlet Ibis in faded plumage. Discussion of the plumage is further complicated by the fact that the Scarlet Ibis takes three to four years to obtain its full adult plumage but may be sexually mature at three years (Bent, 1926). In South America, the older, blood red adults are known to nest first followed by those in faded plumages, supporting the assertion that not all nesting Scarlet Ibis are in full adult plumage (Bent, 1926).

Scarlet Ibis x White Ibis hybridization is noted by Selby (2000), who describes the plumage as “variable rosy-pink.” Careful examination of the photographs by Dr. Dennis Forsythe led him to support the identification in favor of the “true” Scarlet Ibis rather than the hybrid. The plumage of this particular specimen is in keeping with the third nuptial described by Oberholser as “similar to nuptial adults, but head and neck paler – peach red to rose red.” Additionally, this species is known to lose its color rapidly in captivity, resulting in a rose tone rather than the deep scarlet found in South America. This phenomenon has been attributed to a lack of carotenoids in the diet, an item formerly supplied by tropical crustaceans abundant in coastal South American waters (Bent, 1926; Fox, 1962). Given the fact that plumage color is determined by the diet at the time the feathers were acquired, it seems apparent that this bird traveled a considerable distance from a tropical locale (Bird, 1997).

One puzzling aspect of the identification was the iris color. Palmer describes the Scarlet Ibis iris as “very dark brownish.” The iris of this bird was blue, as is that of the White Ibis. Dr. Richard Banks of the Smithsonian Institution questioned if Palmer was correct since no other authors offer an iris color. He also postulated that eye color may be related to age (Banks, 2001).

The bird was extensively photographed with both 300 mm and 400 mm lenses by the author and Dr. Murry Thompson on April 16 and again on April 18, 2001. (Photos page 142.) The bird was last observed on April 20. A strong windstorm passed through the area on April 22, and a revisit to the site on April 30 found the nest and those of adjacent White Ibis destroyed and much of the rookery abandoned.

The immature Scarlet Ibis, like the White Ibis, is known to disperse over great distances (Palmer, 1962). Deprived of the tropical marine crustaceans that provide vivid plumage, this bird was fading as it adapted to life in the Lowcountry of South Carolina. If this individual is determined to be a Scarlet

Ibis (*Eudocimus ruber*), it will be the first recorded in South Carolina and the first to have been found nesting in the state.

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CBC Rare Bird Alert
(704) 332-BIRD

RED-NECKED GREBE: This species was reported only from the Huntington Beach State Park, SC, area with one March 9 (Jim Edwards *et al.*), three March 15 (Mike Bernard *et al.*), and one March 24 (Gary and Miles Phillips).

EARED GREBE: Locally rare were one at Huntington Beach State Park, SC, March 9 (Jim Edwards *et al.*) until March 15 (Mike Bernard *et al.*), and two at Lake Crabtree, Wake County, NC, March 13 (Jeff Pippen).

HERALD PETREL: This species continues to be found regularly each season. This spring's five sightings included singles off Hatteras, NC, May 19 and June 2 (Brian Patteson *et al.*), off Oregon Inlet, NC, May 25 and June 1 (Patteson *et al.*), and off Oregon Inlet May 26 (Mike Tove *et al.*).

FEA'S PETREL: Two off Oregon Inlet, NC, May 25 (Patteson *et al.*) provided the only report of this rare but annual species.

BERMUDA PETREL: Another individual of this much-sought-after species was found off North Carolina, with one off Oregon Inlet May 27 (Tove *et al.*). There are now about 12 reports of this bird for the state.

MANX SHEARWATER: Manx Shearwater is a regular late-spring migrant off our coasts. This year's reports were of one flying past Cape Hatteras, NC, May 26 (Russ & Patricia Tyndall), two off Oregon Inlet, NC, May 27 (Tove *et al.*) and one off Hatteras, NC, the same day (Patteson *et al.*).

WILSON'S STORM-PETREL: One of the better totals for spring, a count of 512 Wilson's was had off Oregon Inlet, NC, June 1 (Patteson *et al.*).

LEACH'S STORM-PETREL: Numbers were down somewhat this spring with the best one-day count being 27 off Oregon Inlet, NC, June 1 (Patteson *et al.*).

WHITE-TAILED TROPICBIRD: One adult White-tailed off Oregon Inlet, NC, June 1 (Patteson *et al.*) provided the only sighting this spring.

RED-BILLED TROPICBIRD: The rare Red-billed Tropicbird was found twice with singles off Oregon Inlet, NC, May 27 (Tove *et al.*) and off Hatteras, NC, June 2 (Patteson *et al.*). It had been several years since this species had been reported from North Carolina waters.

AMERICAN WHITE PELICAN: Four were late at the Savannah Spoil Site, Jasper County, SC, May 25, as noted by Steve Calver.

MAGNIFICENT FRIGATEBIRD: Only two reports of this annual visitor were received, one at Portsmouth, NC, March 23 (Terri Maness) and one north of Cape Hatteras, NC, May 30 (J. Holland).

AMERICAN BITTERN: Noteworthy inland bitterns included one near Boone, NC, April 14-25 (Curtis Smalling) and one migrating over the Harris Farm, Franklin County, NC, May 2 (Ricky Davis). Also one at Bodie Island, NC, May 31 (Jeff Lewis) was late.

LEAST BITTERN: Always noteworthy, especially inland, one was heard in the Butner Game Lands, Durham County, NC, April 29 (Norm Budnitz *et al.*), and one was at Riverbend Park, Catawba County, NC, May 12 (David Campbell, *fide* Dwayne & Lori Martin).

GREAT EGRET: Locally unusual in spring, one was in Transylvania County, NC, March 24 (Betty McIlwain). Also, along the French Broad River,

Henderson County, NC, one was present April 16-17, and two were there May 16 (Ron Selvey, Wayne Forsythe).

SNOWY EGRET: Good inland spring reports included one at Lake Osceola, Hendersonville, NC, April 25 (Ron Selvey, Marilyn Westphal), one at the Little Creek Impoundment, Chapel Hill, NC, May 2 (Rob Gluck), one at Buckhorn Reservoir, Wilson County, NC, May 4 (Ricky Davis), and one along the French Broad R., Henderson County, NC, May 30 (Wayne Forsythe and Marilyn Westphal).

LITTLE BLUE HERON: Inland sightings of this wader involved two at Columbia, SC, and one at the Orangeburg, SC, Sod Farm April 22 (Tim Kalbach), one at the Little Creek Impoundment, Chapel Hill, NC, May 10 (Shantanu Phukan), and one along the French Broad River, Henderson County, NC, May 19-29 (Wayne Forsythe, Bob Olthoff, Marilyn Westphal).

BLACK-CROWNED NIGHT-HERON: Noteworthy inland sightings included five at Granby Park, Columbia, SC, April 1 (Tim Kalbach) and one at L. Osceola, Hendersonville, NC, April 14 (Ron Selvey, Wayne Forsythe, Marilyn Westphal).

GLOSSY IBIS: Reports of inland Glossies are always worth mentioning. This spring an excellent count of 12 was had from Brickhouse Road, Durham County, NC, May 11 (Stephen Perry) and one was in extreme eastern Edgecombe County, NC, April 1 (Ricky Davis).

ROSEATE SPOONBILL: The only spoonbill found this spring was at Bray Plantation, Beaufort County, SC, in early May (Ann Shahid, *fide* Taylor Piephoff).

MOTTLED DUCK: One at Huntington Beach State Park, SC, April 18 (Jack Peachey *et al.*) provided only about the second sighting for the park. This species seems to be slowly spreading northward with several reports from the northern coastal regions of South Carolina now available. Observers in North Carolina need to check all Mallard look-alikes!

CINNAMON TEAL: The male that spent the winter at L. Medcalf, Sunset Beach, NC, was still present as late as April 4 (Mary McDavit).

REDHEAD: This species was present in larger than normal numbers this winter. The best inland early spring count was an impressive 100 on L. Julian, Buncombe County, NC, March 5 (Wayne Forsythe and Simon Thompson).

COMMON EIDER: The wintering female at Atlantic Beach, NC, was last seen March 8 (John Fussell *et al.*).

WHITE-WINGED SCOTER: Five females on L. Julian, NC, March 24 were good finds for the mountains (Wayne Forsythe, Bob Olthoff, Marilyn Westphal).

HOODED MERGANSER: A female and six young were seen near Trenton, Jones County, NC, May 10 (Clancy Ballenger). This makes a couple of years in a row for breeding in this eastern locality.

COMMON MERGANSER: Spring reports of this noteworthy species included 8 at L. Crabtree, Wake County, NC, March 18 (Ricky Davis, Bob

Perkins, Kent Fiala, Harry LeGrand), four still there April 1 (Fiala), and two at Buckhorn Reservoir, Wilson County, NC, April 8 (Davis).

RED-BREASTED MERGANSER: An excellent inland sighting included 40 on L. Julian, NC, April 3 (Tom Joyce). Also late inland spring migrants included one at Jordan Lake, NC, May 13 (Shelley Theye *et al.*) and one east of Rocky Mount, NC, May 20 (Ricky Davis).

SWALLOW-TAILED KITE: This species is a regular spring visitor to North Carolina but all sightings are worth mentioning. This year reports were numerous, including one at Ocracoke April 8 (Peter Vankevich, *fide* Hal Broadfoot, Jr.), one at Bodie Island April 9 (*fide* Jeff Lewis), one in Tyrrell County April 12 (*fide* Lewis), one southwest of Havelock in the Croatan Forest April 29 (John Fussell *et al.*), two in Holly Shelter Game Land April 29 (Jeremy Hyman *et al.*), one inland at Norfleet, eastern Halifax County May 12 (John Wright), and one at Alligator River N.W.R. May 27 (Wayne Irvin). The Buxton, Cape Hatteras area, as usual, hosted Swallow-taileds with one April 21 (Russ & Patricia Tyndall) and up to three by May 2 (Sidney Maddock). The only real interesting South Carolina report was of one slightly early at Sandy Island, Georgetown County March 24 (Jack Peachey and Bob Maxwell).

MISSISSIPPI KITE: Two were a complete surprise very early at Savannah N.W.R., SC, March 3, as noted by Andrea Ceselski and Molly Bonnell. This date is over a month early for normal arrival of this species. This location also produced the best spring count for the species when 22 were counted May 1 (Giff Beaton and Paul Lehman). In North Carolina, where spring coastal reports are regular, the most northerly sighting included two north of Sanderling on the Currituck Banks May 22 (John Fussell *et al.*).

NORTHERN HARRIER: One at Hooper Lane, Henderson County, NC, May 24 (Wayne Forsythe and Ron Selvey) was very late, especially for that mountain locality.

BROAD-WINGED HAWK: Noteworthy eastern reports included one at Conway, SC, April 10 (Gary Phillips), one in the Green Swamp, NC, May 27 (Ricky Davis), and one in Onslow County, NC, May 12 (John Fussell). A good count, for so early in the season, was a migrating "kettle" of 20+ over Winston-Salem, NC, April 3 (Ramona Snavelly).

GOLDEN EAGLE: This spring's reports of the rare Golden Eagle included one at Piney Creek, Alleghany County, NC, March 5-6 (James Coman); one near Linville, NC, May 4 (Shantanu Phukan); and an adult at Savannah N.W.R., SC, March 3 (Robin Carter and Caroline Eastman), providing a very rare coastal occurrence.

VIRGINIA RAIL: Of interest was one found on the UNC-Chapel Hill campus April 13, which was picked up and later released at nearby Jordan Lake (Ginger Travis).

SORA: Another grounded migrant rail was the Sora found exhausted below Brinegar Cabin on the Blue Ridge Parkway, Wilkes County, NC, April 29 (*fide* James Coman).

LIMPKIN: This species staged a minor influx into South Carolina this spring. The state's third documented Limpkin was photographed at Savannah N.W.R. March 1 (Giff Beaton and Tom Egan) and was still being seen as late as May 5 (Tim Kalbach). Another was found at Magnolia Plantation, Charleston County May 13 (Perry Nugent *et al.*), and two were photographed at the Port Harrelson Boat Landing, Bucksport, Horry County May 31 (Andy Day, *fide* Lex Glover). Are drought conditions in Florida responsible for the increase in sightings the last couple of years?

SANDHILL CRANE: Rare sightings involved one near the French Broad River, Henderson County, NC, March 1-13 (Marilyn Westphal, Wayne Forsythe), one over Transylvania County, NC, April 28 (Nancy Iha, *fide* Norma Siebenheller), and one at the Greenville, NC, W.T.P. from late April into May (J.K. Williams, John Wright).

BLACK-BELLIED PLOVER: One was a good find inland at the drawn-down Tar River Reservoir, Nash County, NC, May 10 (Ricky Davis).

AMERICAN GOLDEN-PLOVER: This species is very rarely found in spring, thus of note were four at the Savannah Spoil Site, Jasper County, SC, April 25, as noted by Steve Calver.

SEMIPALMATED PLOVER: Four were good finds at the French Broad River, Henderson County, NC, May 28 (Wayne Forsythe). The peak count at the Tar R. Res., NC, was 51 on May 16 (Ricky Davis).

AMERICAN OYSTERCATCHER: This species was again found nesting on rooftops in Atlantic Beach, NC, where 2-3 pairs were seen feeding young by May (John Fussell).

AMERICAN AVOCET: Nesting in the Carolinas by this species is truly a rare event, thus of note was a nest with four eggs at the Savannah Spoil Site, SC, May 25 (Steve Calver). Unfortunately the nesting attempt had failed by early June.

SOLITARY SANDPIPER: The Tar R. Res., NC, hosted good numbers of this migrant this spring with the peak count being 43 on May 16 (R. Davis).

SPOTTED SANDPIPER: The peak count for the Tar R. Res., NC, was 57 on May 16 (Davis).

UPLAND SANDPIPER: Sightings of this species were down again this spring. The only Uppies reported were one north of Scotland Neck, NC, April 1 (R. Davis), three at the Orangeburg, SC Sod Farm April 22 (Tim Kalbach), and one still there April 27 (Robin Carter and Dennis Forsythe).

LONG-BILLED CURLEW: Only one was reported this spring, that being at Shackleford Banks, Carteret County, NC, April 1 (John Fussell) and April 14 (*fide* Fussell).

MARBLED GODWIT: The 250 Marbleds on Ocracoke Island, NC, March 24 (Jeff Lewis) provided an impressive count for that locality.

WESTERN SANDPIPER: Three was the peak count for this species at the Tar R. Res., NC, May 14 (Ricky Davis).

LEAST SANDPIPER: This species was found in excellent numbers at several inland sites this spring. The peak count at the Tar R. Res., NC, was 281 on May

10, as noted by Ricky Davis. Davis also had a count of 165 at the Goldsboro, NC W.T.P. April 8.

WHITE-RUMPED SANDPIPER: Noteworthy inland reports included three at the Tar R. Res., NC, May 7 (Ricky Davis), five near the French Broad R., Henderson County, NC, May 18 (Wayne Forsythe and Bob Olthoff), and one at the Dobbins Farm, Townville, SC, May 25 (Bob Maxwell).

PECTORAL SANDPIPER: Early inland migrants included one at Newton, Catawba County, NC, March 11 (Dwayne & Lori Martin), three near Raleigh, NC, March 16 (Dan Kaplan, Steve Shultz), and seven at Hooper Lane, Henderson County, NC, March 21 (Wayne Forsythe). The peak inland count reported was the 55 at the Goldsboro, NC W.T.P. April 8 (Ricky Davis).

PURPLE SANDPIPER: One on the C. Lookout, NC, jetty April 1 (John Fussell) was locally unusual, as were seven on the beach at Bird Island, Sunset Beach, NC, April 6 (Mary McDavit). This species lingered later than usual with nine on the Little River Inlet, SC, jetty May 18 (Ginger Travis and Cathy Packer) and three on the Fort Macon, NC, jetty May 19 (Randy Newman).

RUFF: The only report this spring was of two different birds at the Savannah Spoil Site, SC, with one April 25 and another May 2 (Steve Calver). This locale has become one of the more consistent sites for this species the last couple of years.

SHORT-BILLED DOWITCHER: A rare mountains sighting was of one at L. Atagahi, Transylvania County, NC, May 12, as noted by Dick Blee, *fide* Norma Siebenheller.

WILSON'S PHALAROPE: Locally rare and unusual were single Wilson's at Huntington Beach State Park, SC, April 28 (Reggie Daves, *fide* Jack Peachey) and in the mountains near the French Broad R., Henderson County, NC, May 14 (Wayne Forsythe, Bob Olthoff, Marilyn Westphal).

GREAT SKUA: The pelagic trip off of Hatteras, NC, on March 3, produced the only spring reports of this rare but regular species (Brian Patteson *et al.*).

SOUTH POLAR SKUA: Only one was found this spring off North Carolina, with an individual off Oregon Inlet May 25 (Patteson *et al.*).

POMARINE JAEGER: The 18 off Hatteras, NC, May 26 (Patteson *et al.*) was the peak one-day total this spring.

PARASITIC JAEGER: Noteworthy reports of this species included one at Litchfield Beach, SC, March 16 (Brenda Tekin), one off Onslow Beach, NC, May 12 (*fide* John Fussell), two at C. Hatteras, NC, May 26 (Russ & Patricia Tyndall), and one offshore of Hatteras June 3 (Patteson *et al.*).

LONG-TAILED JAEGER: One off Hatteras, NC, May 28 (Patteson *et al.*) was the only one reported this spring.

LAUGHING GULL: Two were early inland migrants at Kehukee Pond, Scotland Neck, NC, March 11, as noted by Ricky Davis.

LITTLE GULL: The only Littles reported this spring were two off Hatteras, NC, March 3 (Patteson *et al.*).

THAYER'S GULL: One off Hatteras, NC, March 3 provided a good offshore sighting (Patteson *et al.*).

ICELAND GULL: An adult was a good find at C. Hatteras, NC, March 4 (Mike Tove, John Fussell *et al.*, sev. obs.).

GLAUCOUS X HERRING HYBRID: An individual, presumed to be this species mix, was a surprise at New Bern, NC, on the late dates of May 8-10 (Bob Holmes, Ed Kerl).

BLACK-LEGGED KITTIWAKE: One was late and unusual near shore at Oregon Inlet, NC, May 30 (*fide* Taylor Piephoff).

CASPIAN TERN: Locally rare inland was a Caspian at L. Junaluska, Haywood County, NC, April 6 (Alex Netherton). The peak inland count reported farther east was 13 at Buckhorn Res., Wilson County, NC, April 8 (Ricky Davis).

ARCTIC TERN: This species was down again offshore this spring with two off Oregon Inlet, NC, May 26 (Mike Tove *et al.*) being the only ones reported.

FORSTER'S TERN: One at L. Julian, NC, April 13 (Simon Thompson and Wayne Forsythe) was a good find that far west.

LEAST TERN: Two at a pond near Stateburg, Sumter County, SC, May 19 (Dennis Forsythe) were excellent finds that far away from the coast.

BRIDLED TERN: The peak count tallied this spring off North Carolina was the 30 off Oregon Inlet May 28, as noted by Mike Tove *et al.*

SOOTY TERN: Six off Hatteras, NC, June 2 (Patteson *et al.*) was the best count reported.

RAZORBILL: This species wintered in excellent numbers off North Carolina this year. The pelagic trip off Hatteras March 3 counted 252 still in our waters (Patteson *et al.*). Also one, seen from the Cedar Island-Ocracoke ferry, was late and out-of-place on the Pamlico Sound, NC, April 14 (*fide* Taylor Piephoff).

WHITE-WINGED DOVE: One frequented a feeder in Wilmington, NC, May 14-15 (Bruce Smithson), providing the only report this spring.

YELLOW-BILLED CUCKOO: One at Conway, SC, March 23-25 (Gary Phillips) was an early migrant.

SHORT-EARED OWL: This species was found lingering at Alligator R. N.W.R., NC, throughout May. Six were seen May 16 (Bryan Watts, Keith Watson, Chuck Hunter) and four were still present June 1 (Jeff Lewis). With this many birds present in one area this late, it is possible that breeding could be taking place; a real unusual event for the state.

YELLOW-BELLIED SAPSUCKER: There was a rash of late sightings of sapsuckers this spring, including singles at Spartanburg, SC, May 12 (Lyle Campbell), at Jordan Lake, NC, May 13 (*fide* Norm Budnitz), and at Falls Lake, NC, May 15 (Brian Bockhahn).

OLIVE-SIDED FLYCATCHER: One was a good find at Deerwood, Transylvania County, NC, May 17 (Dick Blee, *fide* Norma Siebenheller). Much more unusual and locally very rare was the Olive-sided found near Southern Shores, Dare County, NC, May 22 (Jeff Lewis, John Fussell *et al.*).

WILLOW FLYCATCHER: Noteworthy spring sightings away from the mountains included one near Gaffney, SC, May 12 (Ken Garrett, *fide* Lyle Campbell) and one in eastern Moore County, NC, May 12 (Bob Perkins).

EASTERN KINGBIRD: One was rather early in Tyrrell County, NC, March 31, as noted by Jeff Lewis.

SCISSOR-TAILED FLYCATCHER: During the first week of May, Scissor-taileds returned to the site of last year's nesting near Monroe, NC (Anne Olsen). The birds were observed building a nest in the same tower that was used last year. The only other report received was of one near Elgin, SC, May 26 (*fide* Robin Carter).

LOGGERHEAD SHRIKE: This species was reported considerably more frequently this spring than in past years. Of particular interest was the nest with 4-5 young that was photographed in Jones County, NC, during May (Clancy Ballenger, Wayne Irvin). Also of note, a shrike in Catawba County, NC, during May was at the western edge of known summer occurrence in that state (Dwayne & Lori Martin).

YELLOW-THROATED VIREO: Some rather early arrivals included singles at Jordan Lake, NC, March 11 (Judy Murray), at Roanoke Island, NC, March 12 (Jeff Lewis), and near Fairfield, SC, March 16 (Donna Bailey).

WARBLING VIREO: One was rather early at Beaver Lake, Asheville, NC, April 12 (Simon Thompson). The Warblings that spent last summer at Anilorac Farm, Orange County, NC, returned by April 26 when two were seen by Doug Shadwick. A nest was found by May 13, thereby providing nesting evidence for the second year in a row (Alan & Sally Johnston). Other spring migrants found in the east included one along Mid-Pines Road, Raleigh, NC, April 29 (Kent Fiala), one near Weldon, NC, May 12 (Harry LeGrand, Merrill Lynch), two at Norfleet, Halifax County, NC, May 20 (Ricky Davis) and one at the Tar R. Res., Nash County, NC, May 20 (Davis).

PHILADELPHIA VIREO: This species is quite rare as a spring migrant in the Carolinas. This year there were two reports, one on the USC campus, Columbia, SC, April 24 (Caroline Eastman) and one on Roanoke Island, NC, May 15 (Jeff Lewis).

COMMON RAVEN: This species has been nesting in downtown Winston-Salem, NC, for some years now. This spring an interesting behavior was observed. During May, a pair was seen feeding a nestling in one nest while at the same time incubating eggs in a second nearby nest (Regina Burt, Linda Davis, Ramona Snavelly)!

TREE SWALLOW: South Carolina's first documented nesting of this species was had at Table Rock State Park this spring. At Table Rock State Park this spring, four adults were observed flying in and out of nest boxes as early as May 4 (Paul Lehman). A nest with 9 eggs was found May 29, and at least five young were seen several weeks later (Scott Stegenga).

SEDGE WREN: One was locally rare at Hospital Fields, Transylvania County, NC, April 23 (Betty McIlwain), as was one along the French Broad River, Henderson County, NC, April 26-29 (Marilyn Westphal).

MARSH WREN: Noteworthy inland reports included one at the Broad River W.M.A., SC, April 28 (Tim Kalbach), one at Butner Game Land, Durham County, NC, April 29 (Norm Budnitz *et al.*), and one along the French Broad

River, Henderson County, NC, as late as May 12-20 (Marilyn Westphal *et al.*, Wayne Forsythe).

HERMIT THRUSH: One was rather late at Spartanburg, SC, May 12 (*fide* Lyle Campbell).

AMERICAN PIPIT: An excellent count for the mountains was the 400 along Jeffress Road, Henderson County, NC, March 14, as noted by Wayne Forsythe and Ron Selvey.

ORANGE-CROWNED WARBLER: One at Raleigh, NC, April 13 was a good find for spring (Dan Kaplan).

NASHVILLE WARBLER: This species gets progressively harder to find as one heads east from the mountains. Eastern sightings this spring included singles at Huntington Beach State Park, SC, April 30 (Jack Peachey and Paul Rogers), Cary, NC, May 1 (Steve Shultz), Bodie Island, NC, May 2 (Jeff Lewis and Jill Froning), and Southern Shores, NC, May 21-22 (Lewis).

CHESTNUT-SIDED WARBLER: At least three different individuals on the Outer Banks, NC, May 18 indicated a better-than-average movement for that coastal locality (Jeff Lewis).

BLACKBURNIAN WARBLER: Lewis found considerably more Blackburnians than what would normally be expected along the coast of North Carolina this spring. On May 20 he found singles on Roanoke Island and at Alligator R. N.W.R., and then he had another at Bodie Island May 24. In South Carolina, one found at Table Rock State Park April 14 was rather early for the Carolinas (Scott Stegenga).

YELLOW-THROATED WARBLER: One was locally unusual at C. Lookout, NC, March 31 (John Fussell).

BAY-BREASTED WARBLER: One was a good find on Roanoke Island, NC, May 14, as noted by Jeff Lewis.

BLACKPOLL WARBLER: The migration of this species through the Carolinas seemed to peak about 1-2 weeks late, as evidenced by the impressive one-day count of 33 along the Currituck Banks, NC, May 24 (Jeff Lewis).

CERULEAN WARBLER: Numbers of this species along the Roanoke River, NC, have been declining the last couple of years. Thus encouraging was the 38 singing males located during a census May 12-14 (Jean Richter).

BLACK-AND-WHITE WARBLER: Locally noteworthy nesting reports included a female feeding two fledglings in Fairfield County, SC, May 12 (Donna Bailey) and a nest at Ft. Bragg, NC, in early May (J.H. Carter, *fide* Susan Campbell).

PROTHONOTARY WARBLER: Rather early were Prothonotaries at Mayesville, SC, March 17 (Evelyn Dabbs) and Alligator R. N.W.R., NC, also March 17 (Linda Ward).

NORTHERN WATERTHRUSH: Two were early at the Savannah River Site, SC, March 23 (Paul Champlin).

LOUISIANA WATERTHRUSH: One provided a very rare and unexpected local report at C. Lookout, NC, March 31 (John Fussell).

CONNECTICUT WARBLER: Only two reports of this rare warbler were received. One was at Jackson Park, Hendersonville, NC, May 17 (Ron Selvey) and one was found at the Savannah River Site, SC, May 21 (*fide* Paul Champlin).

MOURNING WARBLER: Jackson Park hosted the only one reported this spring, that being on May 4, as noted by Wayne Forsythe and Ron Selvey.

WILSON'S WARBLER: One at Jackson Park, Hendersonville, NC, April 4 was considered to be too early for a migrant, thus possibly a wintering bird (Wayne Forsythe, Ron Selvey, Bob Olthoff). Other easterly sightings of note included one at the Savannah River Site, SC (Paul Champlin), one in Durham, NC, May 17 (Frank Rheindt), one in Orange County, NC, May 18 (Brian Bockhahn), one at Southern Shores, NC, May 21-22 (Jeff Lewis), and one on Roanoke Island, NC, May 23 (Lewis).

CANADA WARBLER: The farthest east this species was recorded was at Bodie Island, NC, when one was present May 18 (Jeff Lewis).

CLAY-COLORED SPARROW: One was found singing at Cowan's Ford Refuge, Mecklenburg County, NC, May 5 (Taylor Piephoff and Rob Van Epps), providing a very rare spring sighting of this species. Of interest, this bird was very near the area where one was found during the past winter!

LARK SPARROW: Noteworthy spring reports included one at Folly Beach, SC, April 11 (Steve Patterson) and two at the Bodie Island, NC, lighthouse May 6 (Jeff Lewis).

LeCONTE'S SPARROW: This species had a better than average winter season this year in the Carolinas. Of interest was the number of lingering spring reports. Five were still at the Savannah River Site, SC, March 31 (Paul Champlin), two were at Santee N.W.R., SC, April 22 (Tim Kalbach), one was still at Vulture, Northampton County, NC, April 22 (Ricky Davis), one was near the Orangeburg, SC Sod Farm April 27 (Robin Carter and Dennis Forsythe), and one was at Broad River W.M.A., SC, April 28 (Tim Kalbach).

LINCOLN'S SPARROW: This species was also found more than usual this spring with sightings including one at Alligator R. N.W.R., NC, March 23 (Jeff Lewis), one at Broad River W.M.A., SC, April 28 (Tim Kalbach), two near Bass Lake, Blowing Rock, NC, May 1 (Jason Bulluck), one near Irmo, Lexington County, SC, May 2 (Robin Carter), one at the French Broad River, Henderson County, NC, May 12 (Marilyn Westphal and Len Pardue), and one at Jackson Park, NC, May 14 (Ron Selvey).

WHITE-THROATED SPARROW: One was quite late at Manteo, NC, May 26, as noted by Jeff Lewis.

WHITE-CROWNED SPARROW: Noteworthy late lingerers/migrants included one at the Savannah Spoil Site, SC, May 6 (Steve Calver, Robin Carter *et al.*) and one at the Bodie Island, NC, lighthouse May 15 (Jeff Lewis).

DARK-EYED JUNCO: One at the Dare Bombing Range, Dare County, NC, May 27 (Merrill Lynch) was quite late.

LAPLAND LONGSPUR: Very rare as a spring migrant, one was late at the Cedar Island, NC, ferry terminal April 14 (*fide* Taylor Piephoff).

DICKCISSEL: The only reports received involved returning birds to two areas of last year's spring sightings. One was back at the Anilorac Farm, Orange County, NC, site May 27 (Shelley Theye and Jill Froning), and a pair was back at the site just north of Southport, NC, May 26 (Ricky Davis). Breeding evidence was noted at Southport with copulation behavior and nest-building happening. Check the summer report for information about breeding at the Orange County site too.

YELLOW-HEADED BLACKBIRD: Rare spring occurrences happened at each end of North Carolina this year. An adult male was at a feeder in Morehead City April 12 (John Fussell); and a female/immature male was near the Oconaluftee Visitor Center, Great Smoky Mtns. N. P. April 15 (Jeff Llewellyn), providing a potential first park report.

RUSTY BLACKBIRD: One in the Croatan Nat. Forest, NC, April 26 (John Fussell) provided a rather late sighting for that species.

BOAT-TAILED GRACKLE: A pair was observed at the Potato Creek Landing area of Clarendon County, SC, March 16 (Steve Patterson). Of interest, the female was seen carrying nesting material, and this area is considerably farther inland than the known nesting sites near L. Moultrie.

PURPLE FINCH: Five were a surprise as they flew past the Bodie Island, NC, lighthouse April 21 (Russ & Patricia Tyndall).

EVENING GROSBEAK: A male at a feeder in Ridgeland, Jasper County, SC, May 30-June 1 (*fide* Will Post) was totally unexpected since the species was practically absent from the Carolinas during the past winter.

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Index to Volume 65 of The Chat

A

Abbeville County, SC, 90
Aiken County, SC, 7, 21, 68, 94,
95
American Birding Association, 87
American Birding Association
Checklist Committee 2000,
84, 86, 87, 88
American Birds, 112
American Ornithologists Union,
34, 87, 123
Anhinga, 142
Athens, GA, 68
Atlanta, GA, 36
Atlantic Coast, 45
Atlantic Intracoastal Waterway,
47
Awendaw Creek, 55

B

Bailey, Donna, 7, 8, 21, 23, 94, 96
Banks, Richard, 144
Barnwell County, SC, 7
Bay of Fundy, 46
Beaufort County, SC, 21, 95
Belvedere, SC, 68
Bird Records Committee, NC,
1999-2000 Report, 83
Bittern, American, 13
Black River Swamp, 123
Blackgum, Swamp, 142
Bluebird, Eastern, 125
Bobwhite, Northern, 137
Bodie Island, NC, 84, 85
Bonnell, Molly, 9, 23, 98
Brambling, 86
Brevard, NC, 86
British Museum, 137
Brown, Sharon, 22, 96
Browning, Becky, 108

Buckfield Plantation, 144
Bull Island, 46
Bunting, Indigo, 125
Bunting, Lazuli, 87
Bunting, Painted, 125
Button Bush, 142

C

Calhoun County, SC, 22
Campbell, Lyle, 8, 9, 22, 24, 96,
98
Campbell, Susan, 83
Cape Island, 47
Cape Romain, SC, 45
Cape Romain National Wildlife
Refuge, 46
Capers Island, 46
Cardinal, Northern, 94, 125
Carter, Robin, 9, 22, 24, 95
Carteret County, NC, 85
Casino Creek, 47
Catbird, Gray, 125
Chamberlain, David, 142
Chamberlain, E B, 34
Charlesfort, 137
Charleston County, SC, 8, 22, 94,
95
Charlotte, NC, 85
Cherokee County, SC, 8, 22, 96
Cherry, Carolina Laurel, 68
Chester County, SC, 8
Chesterfield County, SC, 22
Chickadee, Carolina, 94, 125
Clarke County, GA, 68
Colleton County, SC, 22, 94, 96
Conway, Albert, 8
Cooper, Samuel, 83
Craven County, NC, 85
Crossbill, Red, 88
Crossbill, White-Winged, 88

Cuckoo, Yellow-billed, 125
 Curlew, Eskimo, 46

D

Dabbs, Evelyn, 123, 129
 Dare County, NC, 85
 Davie County, NC, 87
 Davis, Kelly, 85, 108
 Davis, Ricky, 83, 84
 Dean, Eric, 83, 84
 Deepwater Point, 47
 Delaware Bay, 46
 deMent, Reed, 90
 deMent, Samuel, 90
 Dewees Island, 46
 Dodd, Sarah, 45
 Dogwood, 68
 D'Ostilio, Dominick, 85
 D'Ostilio, Emma, 85
 Dove, Mourning, 94, 125
 Dowitcher, Long-billed, 50
 Dowitcher, Short-billed, 45
 Dunlin, 45
 Edisto River, 136

F

Fairfield County, SC, 8, 23, 94, 96
 Fall 1999 North American
 Migration Count in South
 Carolina, 7
 Fall 2000 North American
 Migration Count in South
 Carolina, 94
 Fayetteville, NC, 34
 Fiala, Kent, 85
 Finch, Purple, 125
 Florida, 34, 36, 112, 137, 142
 Flycatcher, Acadian, 125
 Flycatcher, Ash-throated, 85
 Flycatcher, Great Crested, 125
 Flycatcher, Least, 126
 Flycatcher, Yellow-bellied, 126
 Forsythe, Dennis, 144
 Forsythe, Wayne, 84, 85

Fort Caroline, 138
 Fort Fisher, 87
 Franklin County, FL, 36
 Frigatebird, Lesser, 87
 Frigatebird, Magnificent, 86
 Fussell, John, 85, 108

G

Gallinule, Purple, 84
 Gambill, Charles, 84
 Georgetown County, SC, 8, 23,
 94, 97
 Georgetown, SC, 142
 Georgia, 34, 112
 Gerwin, John, 85, 108
 Glover, Lex, 123
 Gnatcatcher, Blue-gray, 127
 Godwit, Black-tailed, 84
 Godwit, Marbled, 45
 Graczyk, Thaddeus, 90
 Graham Creek, 54
 Greenbriar, 141
 Greenlaw, Jon, 34
 Greenshank, Common, 87
 Greenville, NC, 2
 Greenwood County, SC, 90
 Grosbeak, Blue, 125
 Grosbeak, Evening, 125
 Grosbeak, Rose-breasted, 126
 Gulf Stream, 83, 86, 87
 Gull, Franklin's, 84, 88
 Gull, Ring-billed, 84
 Gustafson, Mary, 83

H

Hampton County, SC, 9, 23, 97,
 142
 Harrier, Northern, 87
 Hatteras, 83
 Hawk, Red-tailed, 94
 Hawk, Rough-legged, 87
 Hemoproreus, 91
 Henderson County, NC, 84, 85
 Heron, Great Blue, 94

Heron, Little Blue, 142
Heron, Tricolored, 142
Hilton, William, 137
Holmes, Bob, 84
Horsehead Creek, 47
Hughes, David, 85
Hummingbird, Annas, 85
Hurricane Floyd, 7
Hurricane, Hugo, 56

I

Ibis, Glossy, 142
Ibis, Scarlet, 142
Ibis, White, 142
International Shorebird Survey, 45
Iredell County, NC, 85
Isle of Palms, SC, 47

J

Jasper County, SC, 9, 23, 97
Jay, Blue, 68, 94, 125
Johnston, David, 137
Junco, Dark-eyed, 125
Justice, Michael J., 1

K

Kestrel, American, 90
Killdeer, 51
Kingfisher, Belted, 94
Kinglet, Golden-crowned, 125
Kinglet, Ruby-crowned, 125
Kite, White-tailed, 87
Knot, Red, 45
Komoroski, Mark, 68

L

Lake Mattamuskeet, 108
Lander University, 90
Laudonniere, Rene, 138
Laurel, MD, 123
Laybourne, R.C., 34
LeGrand, Harry, 83, 84

Le Moyne De Morgues, Jacques,
138
Lexington County, SC, 9, 23, 94,
98
Lighthouse Island, 47
Limpkin, 84
Longspur, Lapland, 88
Longspur, Smith's, 88
Loon, Common, 86
Loon, Yellow-billed, 86
Louisiana, 142

M

Mallard, 137
Manomet Observatory for
Conservation Science, 51
Maple, Red, 142
Marsh Island, 47
Massachusetts, 112
Martin, Dwayne, 85
Martin, Lori, 85
Mattamuskeet NWR, 108
Matthews Creek, 54
McClellanville, SC, 47
McNeill, Roger, 83
McPhersonville, SC, 141
Metz, Patricia E., 9, 21, 23, 97
Miskell, K., 1
Mlodinow, Steven, 83
Mockingbird, Northern, 1, 94
Morehead City, NC, 108
Morlan, Joseph, 83
Mowbray, Thomas, 123
Murfreesboro, NC, 2

N

New Bern, NC, 84
North Carolina, 34
North Carolina Museum of Natural
Science, 83, 85, 86, 108
Nugent, Perry, 8, 22, 95

O

O'Brien, Michael, 84
 Oconee County, SC, 23
 Ocracoke Island, NC, 112
 Onslow County, NC, 85
 Oregon Inlet, 83
 Oriole, Northern, 127
 Oriole, Orchard, 125
 Outer Banks, 46, 87
 Outer Banks Wildlife Shelter, 108
 Ovenbird, 126
 Oystercatcher, American, 45

P

Parakeet, Carolina, 137
 Parula, Northern, 125
 Patteson, Brian, 83, 84
 Paulson, Dennis, 112
 Pea Island, 85
 Peachey, Jack, 8, 23, 97
 Pelican, White, 94
 Petrel, Bermuda, 83
 Petrel, Bulwers, 83
 Petrel, Westland, 86
 Petrel, White-chinned, 86
 Phoebe, Eastern, 126
 Piedmont, 85, 87, 91
 Plasmodium, 91
 Plover, Black-bellied, 45
 Plover, Piping, 45
 Plover, Semipalmated, 45
 Plover, Snowy, 46
 Plover, Wilson's, 45
 Port Royal, SC, 137
 Post, William, 34
 Price Inlet, 47
 Puffin, Atlantic, 84

R

Raccoon Key, 47
 Redstart, American, 126
 Redtip, 68
 Ribaut, Jean, 137

Richard, Carroll, 9, 23, 97
 Richland County, SC, 9, 24
 Roanoke Island, 85
 Robin, American, 127

S

San Francisco Bay, 46
 Sanderling, 45
 Sandpiper, Least, 50
 Sandpiper, Semipalmated, 50
 Sandpiper, Spotted, 51
 Sandpiper, Western, 50
 Sapsucker, Yellow-bellied, 125
 Sargent, Bob, 85
 Sargent, Martha, 85
 Selvey, Ron, 84
 Shelley, Dick, 84
 Shorebirds, 45
 Shrike, Loggerhead, 125
 Shuler, Teddy, 7
 Singh, Noora, 123
 Siskin, Pine, 125
 Skua, Brown, 87
 Skua, South Polar, 87
 Slater Museum of Natural History,
 112
 Smithsonian Institution, 144
 South America, 142
 South Carolina, 137
 South Carolina Department of
 Health & Environmental
 Control, 58
 South Carolina Department of
 Natural Resources, 56
 Sparrow, Chipping, 125
 Sparrow, Field, 125
 Sparrow, Fox, 125
 Sparrow, Savannah, 125
 Sparrow, Song, 125
 Sparrow, Swamp, 125
 Sparrow, White-crowned, 125
 Sparrow, White-throated, 125
 Spartanburg, SC, 34
 Spartanburg County, SC, 9, 24, 34,
 94, 98

Spinks, Mark, 45
Spring 2000 North American
Migration Count in SC, 21
Squirrel, Eastern gray, 69
Stevens, Shawn, 86
Stilt, Black-necked, 51
Stork, Wood, 141
Storm-Petrel, Swinhoe's, 84
Sullivan's Island, SC, 142
Sumter County, SC, 123
Swallow, Cave, 85, 88
Swallow, Cliff, 88

T

Tacoma, WA, 112
Tanager, Scarlet, 126
Tanager, Summer, 125
Texas, 142
Thompson, M., 144
Thompson, Simon R.B., 83, 84
Thrasher, Brown, 68, 125
Thrush, Bicknells, 94
Thrush, Hermit, 125
Thrush, Swainsons, 127
Thrush, Wood, 125
Titmouse, Tufted, 94, 125
Towhee, Eastern, 69
Towhee, Rufous-sided, 34
Towhee, Spotted, 34
Turkey, Wild, 137
Turnstone, Ruddy, 54

U

USFWS Migratory Bird Banding
Laboratory, 123
US National Museum, 34
Veery, 126
Venning Creek, 56
Vireo, Philadelphia, 126
Vireo, Red-eyed, 125
Vireo, White-eyed, 125
Vireo, Yellow-throated, 127
Vulture, Turkey, 94

W

Wagner, Steve, 23
Walker, Judy, 85
Warbler, Bay-breasted, 126
Warbler, Blackburnian, 94, 126
Warbler, Black-and-white, 126
Warbler, Black-throated Blue, 126
Warbler, Black-throated Gray, 85
Warbler, Blue-winged, 94, 126
Warbler, Canada, 94, 126
Warbler, Cape May, 94
Warbler, Chestnut-sided, 126
Warbler, Connecticut, 108, 126
Warbler, Golden-winged, 94, 126
Warbler, Hooded, 125
Warbler, Kentucky, 125
Warbler, MacGillivray's, 85, 108
Warbler, Magnolia, 126
Warbler, Mourning, 110, 126
Warbler, Nashville, 94, 126
Warbler, Orange-crowned, 94, 125
Warbler, Palm, 126
Warbler, Prairie, 125
Warbler, Prothonotary, 94, 125
Warbler, Swainsons, 126
Warbler, Tennessee, 94, 126
Warbler, Worm-eating, 126
Warbler, Yellow, 126
Warbler, Yellow-rumped, 125
Warbler, Yellow-throated, 125
Waters, Anne, 7, 21, 95
Waterthrush, Louisiana, 94, 125
Waterthrush, Northern, 126
Watson, J.O., 34
Wax Myrtle, 142
Western Hemisphere Shorebird
Reserve Network, 46
Whimbrel, 45
Whistling-Duck, Black-bellied, 88
Whistling-Duck, White-faced, 88
Whitaker, Abby, 123
White, Bruce, 90
Willet, 45
Winyah Bay, 142
Wood, Bob, 22

Wood-Pewee, Eastern, 125
Woodpecker, Downy, 125
Woodpecker, Red-bellied, 125
Wren, Carolina, 125
Wren, House, 125
Wren, Winter, 126

Y

Yellowlegs, Greater, 54
Yellowlegs, Lesser, 51
York County, SC, 24

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